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=> fil wpix
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FILE LAST UPDATED:                    19 MAY 2008   <20080519/UP>
MOST RECENT THOMSON SCIENTIFIC UPDATE:     200832      <200832/DW>
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>>> IPC Reform backfile reclassifications have been loaded to the end of
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    reclassified documents, but they can be identified by
    20060101/UPIC and 20061231/UPIC, 20070601/UPIC, 20071001/UPIC,
    20071130/UPIC and 20080401/UPIC.
    ECLA reclassifications to April and US national classifications to
    the end of January 2008 have also been loaded. Update dates
    20080401/UPEC and /UPNC have been assigned to these. <<<

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http://www.stn-international.com/archive/presentations/DWPIAnaVist2_0710.p
df

>>> HELP for European Patent Classifications see HELP ECLA, HELP ICO <<<

>>> Updated PDF files in the following links:
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    http://www.stn-international.de/stndatabases/details/epc_0803.zip
    Supplement of all changed ECLA items:
    http://www.stn-international.de/stndatabases/details/ecla_0804s.zip <<
<

>>> Please note that the COPYRIGHT notification has changed <<<

=> d l34 que
L3              QUE  ABB=ON  PLU=ON  POLYMER OR COPOLYMER OR RESIN HOMOPO
                LYMER OR TERPOLYMER
L4              QUE  ABB=ON  PLU=ON  POLYETHYLENE OR PE OR POLYPROPYLENE
                OR PP OR POLYIMIDE OR PI OR POLYSULFONE OR PSU OR POLYURE
                THANE OR PUR
L5              QUE  ABB=ON  PLU=ON  POLYVINYLCHLORIDE OR PVC OR CELLULOS
                E OR NYLON OR POLYACRYLONITRILE OR PAN OR POLYVINYLIDENE(
                W)FLUORIDE OR POLY(W)VINYLIDENE(W)FLURIDE OR PVDF
L6              QUE  ABB=ON  PLU=ON  POLYVINYLCHLORIDE OR PVC OR CELLULOS
                E OR NYLON OR POLYACRYLONITRILE OR PAN
L7              QUE  ABB=ON  PLU=ON  (POLYVINYLIDENE OR POLY(W)VINYLIDENE
                )(W)FLURIDE OR PVDF OR POLYTETRAFLUOROETHYLENE OR PTFE
L8              QUE  ABB=ON  PLU=ON  (INORG# OR INORGANIC)(2A)(COMPOUND O
                R MATERIAL OR CHEMICAL OR ADDITIVE OR AGENT)
L9              QUE  ABB=ON  PLU=ON  SILICA# OR (SILICON OR SI)(W)(OXIDE#
                 OR DIOXIDE# OR OXIDIZ?) OR SIO2
L10             QUE  ABB=ON  PLU=ON  TALC OR MAGNESIUM(A)SILICATE OR TALC
                UM
L11             QUE  ABB=ON  PLU=ON  ALUMINA OR AL2O3 OR (ALUMINUM OR AL)
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L12             QUE  ABB=ON  PLU=ON  LIALO2 OR TIO2 OR (TITANIUM OR TI)(A
                )(OXIDE OR DIOXIDE) OR ZEOLITE OR ALUMINOSILICATE
L13       163398 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L3 OR L4 OR L5 OR L6
                OR L7)(2A)(FILM OR THINFILM)
L16             QUE  ABB=ON  PLU=ON  MORPHOL?
L18             QUE  ABB=ON  PLU=ON  ELECTROLY?
L21             QUE  ABB=ON  PLU=ON  (ETHLENE OR PROPYLENE OR DIMETHYL OR
                 DIETHYL OR METHYLETHYL)(A)CARBONATE
L22             QUE  ABB=ON  PLU=ON  TETRAHYDROFURAN OR 2(W)METHYLTETRAHY
                DROFURAN OR DIMETHOXYETHANE OR METHYLFORMATE OR ETHYLFORM
                ATE OR (METHYL OR ETHYL)(A)FORMATE OR GAMMA(W)BUTYROLACTO
                NE
L26          2029 SEA FILE=WPIX ABB=ON  PLU=ON  (PORO? OR PORE OR PERVIOUS)
                (2A)L13
L27           203 SEA FILE=WPIX ABB=ON  PLU=ON  L26 AND (L8 OR L9 OR L10
                OR L11 OR L12)
L28             1 SEA FILE=WPIX ABB=ON  PLU=ON  L27 AND L16
L29            49 SEA FILE=WPIX ABB=ON  PLU=ON  (L27 OR L28) AND L18
L30            22 SEA FILE=WPIX ABB=ON  PLU=ON  (L28 OR L29) AND (L21 OR
                L22)
L31            76 SEA FILE=WPIX ABB=ON  PLU=ON  (FIRST? OR 1ST OR 1(W)ST
                OR BASE OR PRIMARY?)(2A)L26
L32            41 SEA FILE=WPIX ABB=ON  PLU=ON  (MULTI OR MULTIPL? OR
                PLURAL? OR TWO OR THREE OR NUMEROUS? OR SEVERAL? OR
                SERIES?)(2A)L26
L33             1 SEA FILE=WPIX ABB=ON  PLU=ON  L30 AND (L31 OR L32)
L34             1 SEA FILE=WPIX ABB=ON  PLU=ON  L28 OR L33


=> d l34 ifull

L34  ANSWER 1 OF 1  WPIX COPYRIGHT 2008       THOMSON REUTERS on STN
ACCESSION NUMBER:     2004-820229 [81]   WPIX
DOC. NO. CPI:         C2004-285174 [81]
DOC. NO. NON-CPI:     N2004-647475 [81]
TITLE:                Composite polymer electrolyte for lithium
                      secondary battery for electronic devices, e.g.
                      camcorders, comprises composite film structure
                      having polymer films with different
                      morphologies
DERWENT CLASS:        A85; L03; W01; W04; X16
INVENTOR:             CHANG S; CHANG S H; JANG S H; KIM G M; KIM K M;
                      KIMU K; LEE Y G; RYU G S; RYU K S; RYOO G S
PATENT ASSIGNEE:      (CHAN-I) CHANG S H; (ELTE-N) ELECTRONICS & TELECOM
                      RES INST; (KIMK-I) KIM K M; (KOEL-N) KOREA
                      ELECTRONIC COMMUNICATION; (LEEY-I) LEE Y G; (RYUK-I) RYU
                      K S; (KOEL-N) KOREA ELECTRONICS & TELECOM RES INST
COUNTRY COUNT:        4

PATENT INFORMATION:

      PATENT NO      KIND DATE     WEEK     LA  PG          MAIN IPC
      ------------------------------------------------------------------
      US 20040214088  A1 20041028 (200481)* EN  10[5]
      JP 2004327422   A  20041118 (200481)  JA  11
      KR 2004092188   A  20041103 (200517)  KO
      CN 1610169      A  20050427 (200562)  ZH
      KR 496641       B  20050620 (200659)  KO
```

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
US 20040214088 A1		US 2003-748363	20031229
KR 2004092188 A		KR 2003-26419	20030425
JP 2004327422 A		JP 2003-431458	20031225
CN 1610169 A		CN 2003-10125472	20031231
KR 496641 B		KR 2003-26419	20030425

FILING DETAILS:

PATENT NO	KIND	PATENT NO
KR 496641	B Previous Publ	KR 2004092188 A

PRIORITY APPLN. INFO: KR 2003-26419 20030425
INT. PATENT CLASSIF.:
MAIN: H01M010-40
IPC RECLASSIF.: H01B0001-06 [I,A]; H01B0001-06 [I,C]; H01B0013-00 [I,A]; H01B0013-00 [I,C]; H01M0010-36 [I,C]; H01M0010-40 [I,A]
ECLA: H01M0010-40B
ICO: T01M0010:40L; T01M0300:00K1; T01M0300:00K2
USCLASS NCLM: 429/309.000
NCLS: 429/314.000; 429/316.000; 429/317.000
BASIC ABSTRACT:

US 20040214088 A1 UPAB: 20060122
NOVELTY - A composite polymer electrolyte (10) comprises a composite film structure having a first porous polymer film (12) with micro-scale morphology and a second porous polymer film (14) with submicro-scale morphology coated on the first porous polymer film; and an electrolyte solution (16) impregnated into the composite film structure.
DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for a method of manufacturing a composite polymer electrolyte for a lithium secondary battery comprising preparing a first polymer film made of a first porous polymer with a first pore size; uniformly dissolving a single ion conductor, an inorganic material, and a second porous polymer with a second pore size smaller than the first pore size in a co-solvent in a predetermined ratio to produce a solution; coating the first polymer film with the solution to form a second polymer film on the first polymer film; and impregnating the first and second polymer films with an electrolyte solution.
USE - For lithium secondary battery for electronic devices, e.g. camcorders and cellular phones.
ADVANTAGE - The invented composite polymer electrolyte has increased mechanical properties and enhances ionic conductivity and the charge/discharge cycle stability.
DESCRIPTION OF DRAWINGS - The figure is a schematic view of a composite polymer electrolyte.
Electrolyte (10)
Polymer films (12, 14)
Electrolyte solution (16) TECHNOLOGY FOCUS:
INORGANIC CHEMISTRY - Preferred Material: The inorganic material is silica, talc, alumina, gamma-lithium aluminate, titanium dioxide, zeolite, molybdenum phosphate hydrate or tungsten phosphate hydrate. The electrolyte solution comprises lithium salt from lithium perchlorate, lithium triflate, lithium hexafluorophosphate, lithium

tetrafluoroborate or lithium trifluoromethanesulfonylimide.

Preferred Composition: The inorganic material is added in an amount of 1-100 weight% based on the total weight of the polymer of the second porous matrix. The lithium salt is dissolved in the electrolyte solution at 1-200 weight% based on the total weight of the polymer of the first polymer matrix and the second polymer matrix.

ORGANIC CHEMISTRY - Preferred Material: The inorganic material is silica, talc, alumina, gamma-lithium aluminate, titanium dioxide, zeolite, molybdenum phosphate hydrate or tungsten phosphate hydrate. The electrolyte solution comprises lithium salt from lithium perchlorate, lithium triflate, lithium hexafluorophosphate, lithium tetrafluoroborate or lithium trifluoromethanesulfonylimide.

Preferred Composition: The inorganic material is added in an amount of 1-100 weight% based on the total weight of the polymer of the second porous matrix. The lithium salt is dissolved in the electrolyte solution at 1-200 weight% based on the total weight of the polymer of the first polymer matrix and the second polymer matrix.

ORGANIC CHEMISTRY - Preferred Component: The electrolyte solution is made of ethylene carbonate, propylene carbonate, dimethyl carbonate, diethyl carbonate, methylethyl carbonate, tetrahydrofuran, 2-methyltetrahydrofuran, dimethoxyethane, methyl formate, ethyl formate and/or gamma-butyrolactone. The co-solvent is ethanol, methanol, isopropyl alcohol, acetone, dimethylformamide, dimethylsulfoxide, and/or N-methylpyrrolidone.

POLYMERS - Preferred Material; The first porous polymer film is made of polyethylene, polypropylene, polyimide, polysulfone, polyurethane, PVC, cellulose, nylon, polyacrylonitrile, polyvinylidene fluoride, polytetrafluoroethylene and/or its copolymer. The second porous polymer film is made of vinylidene fluoride based polymer, an acrylate based polymer and/or its copolymer. It is also made of a copolymer of vinylidene fluoride and hexafluoropropylene, a copolymer of vinylidene fluoride and trifluoroethylene, a copolymer of vinylidene fluoride and tetrafluoroethylene, polymethylacrylate, polyethylacrylate, polymethylmethacrylate, polyethylmethacrylate, polybutylacrylate, polybutylmethacrylate, polyvinylacetate, polyethylene oxide, polypropylene oxide and/or its copolymer.

Preferred Property: The first polymer film has a thickness of 10-25 microns and the second polymer film has a thickness of 0.5-10 microns.

Preferred Composition: The electrolyte solution is impregnated into the first and second polymer films at 1-1000 weight% based on the total weight of the polymer of the first and second polymer films.

Preferred Component: The second porous polymer film comprises an inorganic material.

FILE SEGMENT: CPI; EPI

MANUAL CODE: CPI: A08-S02; A11-B05D; A11-C; A11-C04B2; A12-E06; A12-S06C1; L03-E01C2; L03-E03
EPI: W01-C01D3C; W01-C01E5A; W04-M01B1; W04-M01P5; X16-B01F; X16-J01; X16-J08

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FILE LAST UPDATED: 19 May 2008  (20080519/ED)

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FILE COVERS APRIL 1973 TO JANUARY 31, 2008

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FILE COVERS 1898 TO DATE.

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    THE ABSTRACT (/AB), BASIC INDEX (/BI) AND TITLE (/TI) FIELDS  >>>
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=> d 160 que
L3              QUE  ABB=ON  PLU=ON  POLYMER OR COPOLYMER OR RESIN HOMOPO
                LYMER OR TERPOLYMER
L4              QUE  ABB=ON  PLU=ON  POLYETHYLENE OR PE OR POLYPROPYLENE
                OR PP OR POLYIMIDE OR PI OR POLYSULFONE OR PSU OR POLYURE
                THANE OR PUR
L5              QUE  ABB=ON  PLU=ON  POLYVINYLCHLORIDE OR PVC OR CELLULOS
                E OR NYLON OR POLYACRYLONITRILE OR PAN OR POLYVINYLIDENE(
                W)FLUORIDE OR POLY(W)VINYLIDENE(W)FLURIDE OR PVDF
L6              QUE  ABB=ON  PLU=ON  POLYVINYLCHLORIDE OR PVC OR CELLULOS
                E OR NYLON OR POLYACRYLONITRILE OR PAN
L7              QUE  ABB=ON  PLU=ON  (POLYVINYLIDENE OR POLY(W)VINYLIDENE
                )(W)FLURIDE OR PVDF OR POLYTETRAFLUOROETHYLENE OR PTFE
L8              QUE  ABB=ON  PLU=ON  (INORG# OR INORGANIC)(2A)(COMPOUND O
                R MATERIAL OR CHEMICAL OR ADDITIVE OR AGENT)
L9              QUE  ABB=ON  PLU=ON  SILICA# OR (SILICON OR SI)(W)(OXIDE#
                 OR DIOXIDE# OR OXIDIZ?) OR SIO2
L10             QUE  ABB=ON  PLU=ON  TALC OR MAGNESIUM(A)SILICATE OR TALC
                UM
L11             QUE  ABB=ON  PLU=ON  ALUMINA OR AL2O3 OR (ALUMINUM OR AL)
                (W)OXIDE#
L12             QUE  ABB=ON  PLU=ON  LIALO2 OR TIO2 OR (TITANIUM OR TI)(A
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                OR L7)(2A)(FILM OR THINFILM)
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L15           336 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L14 AND (L8 OR L9 OR
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L17            18 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L15 AND L16
L18             QUE  ABB=ON  PLU=ON  ELECTROLY?
L19            43 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L15 OR L17) AND L18
L20             4 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L17 AND L19
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L22             QUE  ABB=ON  PLU=ON  TETRAHYDROFURAN OR 2(W)METHYLTETRAHY
                DROFURAN OR DIMETHOXYETHANE OR METHYLFORMATE OR ETHYLFORM
                ATE OR (METHYL OR ETHYL)(A)FORMATE OR GAMMA(W)BUTYROLACTO
                NE
L23             7 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L19 AND (L21 OR L22)
L24            10 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L20 OR L23
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                (2A)L13
L31            76 SEA FILE=WPIX ABB=ON  PLU=ON  (FIRST? OR 1ST OR 1(W)ST
                OR BASE OR PRIMARY?)(2A)L26
L32            41 SEA FILE=WPIX ABB=ON  PLU=ON  (MULTI OR MULTIPL? OR
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L37            24 SEA FILE=COMPENDEX ABB=ON  PLU=ON  L36 AND (L8 OR L9 OR
                L10 OR L11 OR L12)
L38             7 SEA FILE=COMPENDEX ABB=ON  PLU=ON  L37 AND L16
L39             1 SEA FILE=COMPENDEX ABB=ON  PLU=ON  (L37 OR L38) AND L18
L41             2 SEA FILE=COMPENDEX ABB=ON  PLU=ON  (L37 OR L38 OR L39)
                AND (L31 OR L32)
L42            10 SEA FILE=COMPENDEX ABB=ON  PLU=ON  L38 OR L39 OR L41
L43             3 SEA FILE=COMPENDEX ABB=ON  PLU=ON  L42 AND PY<=2004
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L45          33 SEA FILE=JAPIO ABB=ON  PLU=ON  L44 AND (L8 OR L9 OR L10
                OR L11 OR L12)
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                L32)
L50           8 SEA FILE=JAPIO ABB=ON  PLU=ON  (L47 OR L49) AND PY<=2004

L51         263 SEA FILE=INSPEC ABB=ON  PLU=ON  (PORO? OR PORE OR
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L52          41 SEA FILE=INSPEC ABB=ON  PLU=ON  L51 AND (L8 OR L9 OR L10
                OR L11 OR L12)
L53          10 SEA FILE=INSPEC ABB=ON  PLU=ON  L52 AND L16
L54           4 SEA FILE=INSPEC ABB=ON  PLU=ON  (L52 OR L53) AND L18
L56           3 SEA FILE=INSPEC ABB=ON  PLU=ON  (L52 OR L53 OR L54) AND
                (L31 OR L32)
L57           7 SEA FILE=INSPEC ABB=ON  PLU=ON  L54 OR L56
L58           1 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (KR2003-26419/AP OR
                CN1610169/PN OR CN2003-10125472/AP OR JP2003-431458/AP
                OR JP2004327422/PN OR KR2004092188/PN OR KR496641/PN OR
                US2003-748363/AP OR US20040214088/PN)
L59           9 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L24 NOT L58
L60          23 DUP REM L59 L43 L50 L57 (4 DUPLICATES REMOVED)


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YOU HAVE REQUESTED DATA FROM FILE 'COMPENDEX, JAPIO, INSPEC, HCAPLUS' - CO
NTINUE? (Y)/N:y



L60   ANSWER 1 OF 23  INSPEC  (C) 2008 IET on STN
ACCESSION NUMBER:        2007:9393116  INSPEC  Full-text
TITLE:                   Fabrication and characterization of a
                         PTFE-reinforced integral composite membrane for
                         self-humidifying PEMFC
AUTHOR:                  Huamin Zhang; Yu Zhang; Xiaobing Zhu; Liu Gang;
                         Cheng Bi; Yongmin Liang (Lab of PEMFC Key Mater.
                         & Technol., Chinese Acad. of Sci., Dalian,
                         China)
SOURCE:                  Journal of Power Sources (20 March 2007),
                         vol.165, no.2, p. 786-92, 27 refs.
                         CODEN: JPSODZ, ISSN: 0378-7753
                         SICI: 0378-7753(20070320)165:2L.786:FCPR;1-X
                         Doc.No.: S0378-7753(06)02576-6
                         Published by: Elsevier, Switzerland
DOCUMENT TYPE:           Journal
TREATMENT CODE:          Practical; Experimental
COUNTRY:                 Switzerland
LANGUAGE:                English
ABSTRACT:   A novel PTFE-reinforced self-humidifying membrane based on low-cost
sulfonated poly (ether ether ketone) (SPEEK) resin was fabricated. In the membrane
a base layer and a thin protective layer were bonded by porous
polytetrafluoroethylene (PTFE) film. The base layer, which is composed of silicon
oxide supported platinum catalyst (abbreviated as Pt- SiO2) dispersed in SPEEK
resin, can suppress reactant crossover and achieve good membrane hydration due to
the imbedded hygroscopic Pt-SiO2 catalysts. The thin protective layer, which
constitutes of H2O2 decomposition catalyst Pt-SiO2 and high H2O2-tolerant Nafion
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resin, aims to prevent the SPEEK resin degradation by H2O2 produced at the cathode side by incomplete reduction of oxygen. The porous PTFE film tightly bonds with the SPEEK and the Nafion resins to form an integral membrane and accordingly to avoid delamination of the two different resins. The self-humidifying membrane was characterized by TEM, SEM and EDS, etc. The self-humidifying membrane exhibits higher open circuit voltage (OCV) of 0.98V and maximum power density value of 0.8Wcm-2 than 0.94V, 0.33Wcm-2 of SPEEK/PTFE membrane under dry condition, respectively. The primary 250h fuel cell durability experiment was conducted and suggested that this low-cost self-humidifying membrane was durable both on fuel cell performance and the membrane structure under fuel cell operation condition with dry H2/O2. [All rights reserved Elsevier] CLASSIFICATION CODE: A8630G Fuel cells; A8245 Electrochemistry and
electrophoresis; B8410G Fuel cells; B0560 Polymers and plastics (engineering materials science)
CONTROLLED TERM: catalysts; cathodes; electrochemical electrodes; platinum; porous materials; proton exchange membrane fuel cells; resins; scanning electron microscopy; silicon compounds; transmission electron microscopy
SUPPLEMENTARY TERM: PTFE-reinforced integral composite membrane; self-humidifying PEMFC; polyether ether ketone; thin protective layer; porous polytetrafluoroethylene film; silicon oxide; platinum catalysts; reactant crossover suppression; Nafion resin; cathodes; integral membranes; self-humidifying membranes; SEM; TEM; 0.98 V; Pt-SiO2
CHEMICAL INDEXING: Pt-SiO2 int, SiO2 int, O2 int, Pt int, Si int, O int, SiO2 bin, O2 bin, Si bin, O bin, Pt el
PHYSICAL PROPERTIES: voltage 9.8E-01 V
ELEMENT TERMS: O*Si; SiO2; Si cp; cp; O cp; SiO; O; Pt; Si; O*Pt*Si; O sy 3; sy 3; Pt sy 3; Si sy 3; Pt-SiO2; H*O; H2O2; H cp; V; H2

L60 ANSWER 2 OF 23 INSPEC (C) 2008 IET on STN
ACCESSION NUMBER: 2006:8851274 INSPEC Full-text
TITLE: Macroporous fluoropolymeric films templated by silica colloidal assembly: A possible route to super-hydrophobic surfaces
AUTHOR: Han, Y.; Jian Li; Jun Fu; Yang Cong; Yang Wu; Xue, L. (Graduate Sch. of the Chinese Acad. of Sci., Chinese Acad. of Sci., Changchun, China)
SOURCE: Applied Surface Science (15 Jan. 2006), vol.252, no.6, p. 2229-34, 30 refs.
CODEN: ASUSEE, ISSN: 0169-4332
SICI: 0169-4332(20060115)252:6L.2229:MFFT;1-#
Doc.No.: S0169-4332(05)00684-7
Published by: Elsevier, Netherlands
DOCUMENT TYPE: Journal
TREATMENT CODE: Experimental
COUNTRY: Netherlands
LANGUAGE: English
ABSTRACT: A super-hydrophobic surface was obtained on a three-dimensional (3D) polyvinylidene fluoride (PVDF) macroporous film. The porous films were fabricated through self-assembled silica colloidal templates. The apparent water contact angle of the surface can be tuned from 106° to 153° through altering the sintering temperature and the diameter of the colloidal templates. A composite structure of micro-cavities and nanoholes on the PVDF surface was responsible for the super-hydrophobicity. The wettability of the porous surfaces was described by the use of

the Cassie-Baxter model and Wenzel's equation. [All rights reserved Elsevier]

CLASSIFICATION CODE: A6810C Fluid surface energy (surface tension, interface tension, angle of contact, etc.); A6855 Thin film growth, structure, and epitaxy; A6140K Structure of polymers, elastomers, and plastics; A6140G Structure of powders and porous materials; A8120E Powder techniques, compaction and sintering; A8270D Colloids

CONTROLLED TERM: colloids; contact angle; microcavities; polymer films; sintering; wetting

SUPPLEMENTARY TERM: macroporous fluoropolymeric films; self-assembled silica colloidal templates; super-hydrophobic surfaces; contact angle; sintering; composite structure; microcavities; wettability; porous surfaces; Cassie-Baxter model; Wenzels equation

ELEMENT TERMS: D

L60 ANSWER 3 OF 23 HCAPLUS COPYRIGHT 2008 ACS on STN DUPLICATE 1

ACCESSION NUMBER: 2004:1057858 HCAPLUS Full-text

DOCUMENT NUMBER: 142:206435

ENTRY DATE: Entered STN: 10 Dec 2004

TITLE: Charge insertion into hybrid nanoarchitectures: mesoporous manganese oxide coated with ultrathin poly(phenylene oxide)

AUTHOR(S): Rhodes, Christopher P.; Long, Jeffrey W.; Doescher, Michael S.; Dening, Brett M.; Rolison, Debra R.

CORPORATE SOURCE: Surface Chemistry Branch, Naval Research Laboratory, Washington, DC, 20375, USA

SOURCE: Journal of Non-Crystalline Solids (2004), 350, 73-79
CODEN: JNCSBJ; ISSN: 0022-3093

PUBLISHER: Elsevier B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

CLASSIFICATION: 72-2 (Electrochemistry)
Section cross-reference(s): 35, 36, 52, 66, 78

ABSTRACT:
Hybrid inorg.-organic nanoarchitectures are created by self-limiting electrodeposition of ultrathin poly(phenylene oxide) (PPO) coatings on high surface area (>200 m2 g-1), mesoporous sol-gel-derived MnO2. SEM images confirm that the polymer film coats the ***porous*** surface without completely covering over or occluding the large-scale porosity of the oxide nanoarchitecture. X-ray photoelectron spectroscopic measurements show C1s and O1s photoelectron peaks consistent with the reported PPO structure. Cyclic voltammetry demonstrates that the encapsulated MnO2 undergoes reversible Li-ion insertion/deinsertion reactions where the Li+ ions are supplied through the polymer coating from an MeCN electrolyte; the polymer coating does not affect the nature of insertion into the oxide. These hybrid systems assemble inorg. and organic components on the nanoscale and offer routes to new architectures with expanded functionality and enhanced electrochem. performance for energy-storage applications.

SUPPL. TERM: charge insertion hybrid nanoarchitecture mesoporous manganese oxide polyphenylene

INDEX TERM: Polyoxyphenylenes
ROLE: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process);

PROC (Process); USES (Uses)
(charge insertion into hybrid nanoarchitectures and mesoporous manganese oxide coated with ultrathin poly(phenylene oxide) and lithium electrochem. inclusion and deinclusion in encapsulated MnO2)

INDEX TERM: Hybrid organic-inorganic materials
(charge insertion into hybrid nanoarchitectures of mesoporous manganese oxide coated with ultrathin poly(phenylene oxide))

INDEX TERM: Polymerization
(electrochem., oxidative; of phenol on MnO2 and charge insertion into hybrid nanoarchitectures and mesoporous manganese oxide coated with ultrathin poly(phenylene oxide))

INDEX TERM: Inclusion reaction
(electrochem., retro; of lithium by poly(phenylene oxide)-encapsulated MnO2)

INDEX TERM: Inclusion reaction
(electrochem.; of lithium by poly(phenylene oxide)-encapsulated MnO2)

INDEX TERM: Porous materials
(mesoporous; charge insertion into hybrid nanoarchitectures of mesoporous manganese oxide coated with ultrathin poly(phenylene oxide))

INDEX TERM: Polymer morphology
(of poly(phenylene oxide)-encapsulated MnO2)

INDEX TERM: Binding energy
X-ray photoelectron spectra
(of poly(phenylene oxide)-encapsulated MnO2 on ITO)

INDEX TERM: Cyclic voltammetry
(of poly(phenylene oxide)-encapsulated MnO2 on ITO in MeCN containing LiClO4)

INDEX TERM: 1313-13-9, Manganese oxide (MnO2), uses
ROLE: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(charge insertion into hybrid nanoarchitectures and mesoporous manganese oxide coated with ultrathin poly(phenylene oxide) and lithium electrochem. inclusion and deinclusion in encapsulated MnO2)

INDEX TERM: 9041-80-9P, Poly(phenylene oxide)
ROLE: CPS (Chemical process); PEP (Physical, engineering or chemical process); PNU (Preparation, unclassified); PREP (Preparation); PROC (Process)
(charge insertion into hybrid nanoarchitectures and mesoporous manganese oxide coated with ultrathin poly(phenylene oxide) and lithium electrochem. inclusion and deinclusion in poly(phenylene oxide)-encapsulated MnO2)

INDEX TERM: 7439-93-2, Lithium, reactions
ROLE: CPS (Chemical process); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(charge insertion into hybrid nanoarchitectures and mesoporous manganese oxide coated with ultrathin poly(phenylene oxide) and lithium electrochem. inclusion and deinclusion in poly(phenylene oxide)-encapsulated MnO2)

INDEX TERM: 50926-11-9, ITO

ROLE: DEV (Device component use); USES (Uses)
(charge insertion into hybrid nanoarchitectures and mesoporous manganese oxide coated with ultrathin poly(phenylene oxide) and lithium electrochem. inclusion and deinclusion in poly(phenylene oxide)-encapsulated MnO2 on electrode of)

INDEX TERM: 7791-03-9, Lithium perchlorate (LiClO4)
ROLE: NUU (Other use, unclassified); PRP (Properties); USES (Uses)
(cyclic voltammetry of poly(phenylene oxide)-encapsulated MnO2 on ITO in MeCN containing LiClO4)

INDEX TERM: 108-95-2, Phenol, reactions
ROLE: RCT (Reactant); RACT (Reactant or reagent)
(electrochem. oxidative polymerization on MnO2 and charge insertion into hybrid nanoarchitectures and mesoporous manganese oxide coated with ultrathin poly(phenylene oxide))

REFERENCE COUNT: 36 THERE ARE 36 CITED REFERENCES AVAILABLE FOR THIS RECORD.

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HCAPLUS

L60 ANSWER 4 OF 23 INSPEC (C) 2008 IET on STN
ACCESSION NUMBER: 2005:8351862 INSPEC Full-text
DOCUMENT NUMBER: A2005-10-6855-058
TITLE: A novel synthetic process of polyimide/poly(methyl silsesquioxane) hybrid materials with nano/micro pore structures
AUTHOR: Kyung-Il Kim; Joon-Hyun An; Jun-Young Lee; Jung-Hyun Kim (Dept. of Chem. Eng., Yonsei Univ., Seoul, South Korea)
SOURCE: Molecular Crystals and Liquid Crystals (2004), vol.424, p. 25-34, 20 refs.
CODEN: MCLCE9, ISSN: 1058-725X
SICI: 1058-725X(2004)424L.25:NSPP;1-8
Published by: Gordon & Breach, Switzerland
Conference: 14th Korea-Japan Joint Forum on Organic Materials for Electronics and Photonics KJF 2003, Busan, South Korea, 28 Sept.-1 Oct. 2003
DOCUMENT TYPE: Conference; Conference Article; Journal
TREATMENT CODE: Experimental
COUNTRY: Switzerland
LANGUAGE: English
ABSTRACT: A novel synthetic process for multi-porous polyimide (PI)/poly (methyl silsesquioxane) (PMSSQ) hybrid material has been studied via supercritical CO2 technology. The end groups of PI precursors were modified by coupling agent to be hybridized with alkoxysilanes and became PMSSQ precursors. PI/PMSSQ hybrid precursor solution was spun on a silicon wafer substrate for film formation. The PI precursor segment was imidized and micro-pores were developed by removal of by-product, CO2 via supercritical CO2 media. The PMSSQ precursor segment was cured and nano-pores were generated by supercritical extraction. Average micro-pore size and nano-pore size were 10 μm and 40 nm respectively. The dielectric constant of the multi-porous PI /PMSSQ hybrid film was calculated to 2.5
CLASSIFICATION CODE: A6855 Thin film growth, structure, and epitaxy; A8116 Methods of nanofabrication and processing; A6140K Structure of polymers, elastomers, and plastics; A7720 Dielectric permittivity; A6820 Solid surface structure; A6140G Structure of powders and porous materials
CONTROLLED TERM: curing; nanoporous materials; nanotechnology; organic-inorganic hybrid materials; permittivity; polymer films
SUPPLEMENTARY TERM: multiporous polyimide-poly(methyl silsesquioxane) hybrid materials; nanostructure;

micropore structure; hybridization; alkoxysilanes; PI-PMSSQ hybrid precursor solution; silicon wafer substrate; dielectric constant; hybrid film; curing; supercritical CO2 technology; 10 micron; 40 nm; Si
CHEMICAL INDEXING: Si sur, Si el
PHYSICAL PROPERTIES: size 1.0E-05 m; size 4.0E-08 m
ELEMENT TERMS: C*O; CO2; C cp; cp; O cp; Si

L60 ANSWER 5 OF 23 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2003:471041 HCAPLUS Full-text
DOCUMENT NUMBER: 139:24138
ENTRY DATE: Entered STN: 20 Jun 2003
TITLE: Secondary nonaqueous electrolyte battery
INVENTOR(S): Saito, Satoshi
PATENT ASSIGNEE(S): Japan Storage Battery Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
INT. PATENT CLASSIF.:
MAIN: H01M004-02
SECONDARY: H01M002-16; H01M010-40
CLASSIFICATION: 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003173769	A	20030620	JP 2001-371510	200112 05
PRIORITY APPLN. INFO.:			JP 2001-371510	200112 05

PATENT CLASSIFICATION CODES:

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 2003173769	ICM	H01M004-02
	ICS	H01M002-16; H01M010-40
	IPCI	H01M0004-02 [ICM,7]; H01M0002-16 [ICS,7]; H01M0010-40 [ICS,7,C*]
	IPCR	H01M0002-16 [I,C*]; H01M0002-16 [I,A]; H01M0004-02 [I,C*]; H01M0004-02 [I,A]; H01M0010-36 [I,C*]; H01M0010-40 [I,A]

ABSTRACT:
The battery has a nonaq. electrolyte between an active mass containing anode mixture layer and an active mass containing cathode mixture layer; where the electrolyte is made of an electrolyte solution contained porous polymer film; and the anode mixture layer and/or the cathode mixture layer contains an inorg. solid ***electrolyte*** powder.

SUPPL. TERM: secondary battery nonaq electrolyte porous polymer film; inorg solid electrolyte powder electrode secondary

battery
INDEX TERM: Battery electrodes
(electrodes containing inorg. solid electrolyte powders for secondary lithium batteries)
INDEX TERM: Secondary batteries
(electrolytes and electrodes containing porous polymers and inorg. solid electrolytes resp. for secondary lithium batteries)
INDEX TERM: Battery electrolytes
(nonaq. electrolytes containing porous polymer films for secondary lithium batteries)
INDEX TERM: 7782-42-5, Graphite, uses
ROLE: DEV (Device component use); USES (Uses)
(anode; electrodes containing inorg. solid electrolyte powders for secondary lithium batteries)
INDEX TERM: 12190-79-3, Cobalt lithium oxide (CoLiO2)
ROLE: DEV (Device component use); USES (Uses)
(cathode; electrodes containing inorg. solid electrolyte powders for secondary lithium batteries)
INDEX TERM: 7631-86-9, Silica, uses 12057-24-8, Lithium oxide, uses
ROLE: DEV (Device component use); USES (Uses)
(electrodes containing inorg. solid electrolyte powders for secondary lithium batteries)
INDEX TERM: 9011-17-0, Hexafluoropropylene-vinylidene fluoride copolymer
ROLE: DEV (Device component use); USES (Uses)
(electrolyte; nonaq. electrolytes containing porous polymer films for secondary lithium batteries)
INDEX TERM: 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 21324-40-3, Lithium hexafluorophosphate
ROLE: DEV (Device component use); USES (Uses)
(nonaq. electrolytes containing porous polymer films for secondary lithium batteries)

L60 ANSWER 6 OF 23 HCAPLUS COPYRIGHT 2008 ACS on STN DUPLICATE 2
ACCESSION NUMBER: 2002:635135 HCAPLUS Full-text
DOCUMENT NUMBER: 138:58808
ENTRY DATE: Entered STN: 22 Aug 2002
TITLE: Effect of inorganics on polymer electrolytes for lithium batteries
AUTHOR(S): Bai, Ying; Wu, Feng; Ren, Xu-mei
CORPORATE SOURCE: School of Chemical Engineering and Materials Science, Beijing Institute of Technology, National Development Center for Hi-Tech Green Materials, Beijing, 100081, Peop. Rep. China
SOURCE: Dianchi (2002), 32(Suppl.), 56-57
CODEN: DNCHEP; ISSN: 1001-1579
PUBLISHER: Dianchi Zazhishe
DOCUMENT TYPE: Journal
LANGUAGE: Chinese
CLASSIFICATION: 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 38

ABSTRACT:
On the basis of the preparation of the PVDF-HFP porous ***films*** by a phase-inversion method, the composite polymer ***electrolyte*** membranes with SiO2 or zeolite additive were prepared, which could be used in the secondary lithium batteries. The film morphologies and the charge-discharge features were characterized with SEM and electrochem. test, resp. The anal. of the n-BuOH uptakes showed that the composite polymer ***films*** had higher porosities and could meet the demands of the lithium secondary batteries.

SUPPL. TERM: lithium battery polymer electrolyte inorg additive effect
INDEX TERM: Battery electrolytes
Polymer electrolytes
(effect of inorgs. on polymer electrolytes for lithium batteries)
INDEX TERM: Zeolites (synthetic), uses
ROLE: MOA (Modifier or additive use); USES (Uses)
(effect of inorgs. on polymer electrolytes for lithium batteries)
INDEX TERM: Phase
(inversion; effect of inorgs. on polymer electrolytes for lithium batteries)
INDEX TERM: Secondary batteries
(lithium; effect of inorgs. on polymer electrolytes for lithium batteries)
INDEX TERM: 9011-17-0, Hexafluoropropylene-vinylidene fluoride copolymer
ROLE: DEV (Device component use); USES (Uses)
(effect of inorgs. on polymer electrolytes for lithium batteries)
INDEX TERM: 7631-86-9, Silica, uses
ROLE: MOA (Modifier or additive use); USES (Uses)
(effect of inorgs. on polymer electrolytes for lithium batteries)

L60 ANSWER 7 OF 23 COMPENDEX COPYRIGHT 2008 EEI on STN
ACCESSION NUMBER: 2001(54):865 COMPENDEX Full-text
TITLE: 2001 Annual report conference on electrical insulation and dielectric phenomena.
MEETING TITLE: 2001 Annual Report Conference on Electrical Insulation and Dielectric Phenomena.
MEETING LOCATION: Kitchener, ON, Canada
MEETING DATE: 14 Oct 2001-17 Oct 2001
SOURCE: Conference on Electrical Insulation and Dielectric Phenomena (CEIDP), Annual Report 2001., (IEEE cat n 01CH37225) 693p
SOURCE: Conference on Electrical Insulation and Dielectric Phenomena (CEIDP), Annual Report 2001., (IEEE cat n 01CH37225) 693p
CODEN: CEIPAZ ISSN: 0084-9162
PUBLICATION YEAR: 2001
MEETING NUMBER: 58825
DOCUMENT TYPE: Conference Proceedings
TREATMENT CODE: Theoretical; Experimental
LANGUAGE: English
ABSTRACT: The proceedings contains 171 papers of the 2001 Annual Report Conference on Electrical Insulation and Dielectric Phenomena. The topics include:

charging of celluar space charge electret films in various gas atmospheres; space charge profiles in planar LDPE with TiO2 additives and a temperature gradient; influence of the electrode materials on performance of plasma opening switch; coating of porous polytetrafluoroethylene films with other polymers for electret applications; measurement of nonlinear dielectric properties-effect of dielectric dispersion; propagation modes of surface discharge plasma in a metallized polymer film capacitor; and influence of morphology and thermal stability on tree initiation in polyethylene films.(Edited abstract) CLASSIFICATION CODE: 701.1 Electricity: Basic Concepts and Phenomena;
708.1 Dielectric Materials; 815.1 Polymeric Materials; 817.1 Plastics Products; 712.1 Semiconducting Materials; 751.2 Acoustic Properties of Materials

CONTROLLED TERM: *Electric space charge; Electric breakdown; Electric discharges; Electrets; Electric potential; Polymer blends; Semiconductor doping; Electrodes; Polymers; Electric conductance; Electric insulation; Dielectric materials; Electric field effects

SUPPLEMENTARY TERM: Dielectric breakdown; Corona discharges; Pyroelectric coefficients; Charge separation; Schottky coefficients; Plasma opening switches; Temperature gradients; Impedance spectroscopy; Thermal plasma processing; EiRev

ELEMENT TERM: O*Ti; TiO; Ti cp; cp; O cp

L60 ANSWER 8 OF 23 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2001:868873 HCAPLUS Full-text

DOCUMENT NUMBER: 136:9101

ENTRY DATE: Entered STN: 30 Nov 2001

TITLE: Fabrication method for lithium secondary battery with polymer electrolyte prepared by spray method

INVENTOR(S): Yun, Kyung Suk; Cho, Byung Won; Cho, Won Il; Kim, Hyung Sun; Kim, Un Seok

PATENT ASSIGNEE(S): Korea Institute of Science and Technology, S. Korea

SOURCE: PCT Int. Appl., 34 pp.
CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

INT. PATENT CLASSIF.:
MAIN: H01M010-38

CLASSIFICATION: 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001091222	A1	20011129	WO 2000-KR515	200005 22

W: JP, KR, US

PRIORITY APPLN. INFO.: WO 2000-KR515 200005 22

PATENT CLASSIFICATION CODES:

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2001091222	ICM	H01M010-38
	IPCI	H01M0010-38 [ICM,7]; H01M0010-36 [ICM,7,C*]
	IPCR	H01M0002-16 [I,C*]; H01M0002-16 [I,A]; H01M0010-36 [I,C*]; H01M0010-38 [I,A]; H01M0010-40 [I,A]
	ECLA	H01M002/16C3; H01M010/38; H01M010/40B; T01M

ABSTRACT:
The present invention provides a lithium secondary battery and its fabrication method. More particularly, the present invention provides a lithium secondary battery comprising a porous polymer electrolyte and its fabrication method, wherein the polymer electrolyte is fabricated by the following process: (a) dissolving at least one polymer with plasticizers and organic electrolyte solvents to obtain at least one polymeric electrolyte solution; (b) adding the obtained polymeric electrolyte solution to a barrel of a spray machine, and (c) spraying the polymeric electrolyte solution onto a substrate using a nozzle to form a porous polymer ***electrolyte*** film. The lithium secondary battery of the present invention has advantages of better adhesion with electrodes, good mech. strength, better performance at low and high temps., and better compatibility with organic electrolytes of a lithium secondary battery.

SUPPL. TERM: polymer electrolyte lithium secondary battery; spray method fabrication polymer electrolyte lithium secondary battery

INDEX TERM: Inductance
(electrostatic, spray method; fabrication method for lithium secondary battery with polymer electrolyte prepared by spray method)

INDEX TERM: Battery electrolytes
Lamination
Plasticizers
Polymer electrolytes
(fabrication method for lithium secondary battery with polymer electrolyte prepared by spray method)

INDEX TERM: Fluoropolymers, uses
Polyoxyalkylenes, uses
ROLE: DEV (Device component use); USES (Uses)
(fabrication method for lithium secondary battery with polymer electrolyte prepared by spray method)

INDEX TERM: Fluoropolymers, uses
ROLE: MOA (Modifier or additive use); USES (Uses)
(filling agent; fabrication method for lithium secondary battery with polymer electrolyte prepared by spray method)

INDEX TERM: Secondary batteries
(lithium; fabrication method for lithium secondary battery with polymer electrolyte prepared by spray method)

INDEX TERM: Alcohols, uses
ROLE: MOA (Modifier or additive use); USES (Uses)
(plasticizer; fabrication method for lithium secondary battery with polymer electrolyte prepared by spray method)

INDEX TERM: Coating process
(spray; fabrication method for lithium secondary battery with polymer electrolyte prepared by spray method)

INDEX TERM: 79-20-9, Methyl acetate 105-37-3, Ethyl propionate 109-99-9, Thf, uses 141-78-6, Ethyl acetate, uses 554-12-1, Methyl propionate 7782-42-5, Graphite, uses 7791-03-9, Lithium perchlorate 9002-86-2, Pvc 9002-88-4, Polyethylene 9003-07-0, Polypropylene 9003-20-7, Polyvinyl acetate 9004-34-6, Cellulose, uses 9004-35-7, Cellulose acetate 9004-36-8 9004-39-1, Cellulose acetate propionate 9010-76-8, Acrylonitrile-vinylidene chloride copolymer 9010-88-2, Ethyl acrylate-methylmethacrylate copolymer 9011-14-7, Pmma 9011-17-0, Hexafluoropropylene-vinylidene fluoride copolymer 12190-79-3, Cobalt lithium oxide colio2 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate 24937-79-9, Pvdf 24968-79-4, Acrylonitrile-methyl acrylate copolymer 24980-34-5, Polyethylenesulfide 25014-41-9, Polyacrylonitrile 25086-89-9, Vinyl acetate-vinyl pyrrolidone copolymer 25322-68-3, Peo 25322-69-4, Polypropylene oxide 25667-11-2, Polyethylenesuccinate 26913-06-4, Poly[imino(1,2-ethanediyl)] 28726-47-8, Poly(oxymethylene-oxyethylene) 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate 98973-15-0, Poly[bis(2-(2-methoxyethoxyethoxy))-phosphazene]
ROLE: DEV (Device component use); USES (Uses)
(fabrication method for lithium secondary battery with polymer electrolyte prepared by spray method)

INDEX TERM: 554-13-2, Lithium carbonate 1304-28-5, Barium oxide bao, uses 1309-48-4, Magnesia, uses 1310-65-2, Lithium hydroxide 1313-59-3, Sodium oxide, uses 1344-28-1, Alumina, uses 7631-86-9, Silica, uses 7789-24-4, Lithium fluoride, uses 9002-84-0, Ptfe 12003-67-7, Aluminum lithium oxide allio2 12047-27-7, Barium titanium oxide batio3, uses 12057-24-8, Lithia, uses 13463-67-7, Titania, uses 26134-62-3, Lithium nitride
ROLE: MOA (Modifier or additive use); USES (Uses)
(filling agent; fabrication method for lithium secondary battery with polymer electrolyte prepared by spray method)

INDEX TERM: 67-64-1, Acetone, uses 67-68-5, Dmso, uses 68-12-2, Dmf, uses 80-73-9, 1,3-Dimethyl-2-imidazolidinone 96-48-0, Butyrolactone 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 110-71-4, 1,2-Dimethoxyethane 127-19-5, n,n-Dimethyl acetamide 143-24-8, Tetraethylene glycol dimethyl ether 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 872-50-4, n-Methyl-2-pyrrolidone, uses 4437-85-8, Butylene carbonate 26101-52-0

ROLE: MOA (Modifier or additive use); USES (Uses)
(plasticizer; fabrication method for lithium secondary battery with polymer electrolyte prepared by spray method)

REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD.

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(2) Celanese Corporation; US A3925525 1975
(3) Fuji Photo Film Co Ltd; JP B108250100 1996
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(6) Nec Corp; JP A12082498 2000
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(9) Toshiba Battery Co Ltd; JP A10208775 1998
(10) Us Army; US A4812375 1989

L60 ANSWER 9 OF 23 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2001:868870 HCAPLUS Full-text
DOCUMENT NUMBER: 136:9098
ENTRY DATE: Entered STN: 30 Nov 2001
TITLE: A lithium secondary battery comprising a porous polymer separator film fabricated by a spray method
INVENTOR(S): Yun, Kyung Suk; Cho, Byung Won; Cho, Won Il; Kim, Hyung Sun; Kim, Un Seok
PATENT ASSIGNEE(S): Korea Institute of Science and Technology, S. Korea
SOURCE: PCT Int. Appl., 36 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
INT. PATENT CLASSIF.:
MAIN: H01M010-38
CLASSIFICATION: 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001091219	A1	20011129	WO 2000-KR512	200005 22
W: JP, KR, US				
PRIORITY APPLN. INFO.:			WO 2000-KR512	200005 22

PATENT CLASSIFICATION CODES:

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2001091219	ICM	H01M010-38
	IPCI	H01M0010-38 [ICM,7]; H01M0010-36 [ICM,7,C*]
	IPCR	H01M0002-16 [I,C*]; H01M0002-16 [I,A]; H01M0010-04 [I,C*]; H01M0010-04 [I,A]; H01M0010-36 [I,C*]; H01M0010-38 [I,A];

H01M0010-40 [I,A]
ECLA H01M002/16E; H01M010/04D; H01M010/40B; T01M; T01M; T01M

ABSTRACT:
The present invention provides a lithium secondary battery and its fabrication method. More particularly, the present invention provides a lithium secondary battery comprising a porous polymer separator film and its fabrication method, wherein the ***porous*** polymer separator film is fabricated by the following process : (a) melting at least one polymer or dissolving at least one polymer with an organic solvent to obtain at least one polymeric melt or at least one polymeric solution; (b) adding the obtained polymeric melt or polymeric solution to barrels of a spray machine; and (c) spraying the polymeric melt or polymeric solution onto a substrate using a nozzle to form a porous separator film. The lithium secondary battery of the present invention has advantages of better adhesion with electrodes, good mech. strength, better performance at low and high temps., and better compatibility with an organic electrolyte solution of a lithium secondary battery.

SUPPL. TERM: lithium secondary battery porous polymer separator

INDEX TERM: Inductance
(electrostatic induction; lithium secondary battery comprising porous polymer separator film fabricated by spray method)

INDEX TERM: Fluoropolymers, uses
ROLE: MOA (Modifier or additive use); USES (Uses)
(filling agent; lithium secondary battery comprising porous polymer separator film fabricated by spray method)

INDEX TERM: Secondary battery separators
(lithium secondary battery comprising porous polymer separator film fabricated by spray method)

INDEX TERM: Alcohols, uses
Fluoropolymers, uses
Polyoxyalkylenes, uses
ROLE: DEV (Device component use); USES (Uses)
(lithium secondary battery comprising porous polymer separator film fabricated by spray method)

INDEX TERM: Secondary batteries
(lithium; lithium secondary battery comprising porous polymer separator film fabricated by spray method)

INDEX TERM: Coating process
(spray; lithium secondary battery comprising porous polymer separator film fabricated by spray method)

INDEX TERM: 554-13-2, Lithium carbonate 1304-28-5, Baria, uses 1309-48-4, Magnesia, uses 1310-65-2, Lithium hydroxide 1313-59-3, Sodium oxide na2o, uses 1344-28-1, Alumina, uses 7631-86-9, Silica, uses 7789-24-4, Lithium fluoride, uses 9002-84-0, Ptfe 12003-67-7, Aluminum lithium oxide allio2 12047-27-7, Barium titanium oxide batio3, uses 12057-24-8, Lithia, uses 13463-67-7, Titania, uses 26134-62-3, Lithium

nitride
ROLE: MOA (Modifier or additive use); USES (Uses)
(filling agent; lithium secondary battery comprising porous polymer separator film fabricated by spray method)

INDEX TERM: 67-64-1, Acetone, uses 67-68-5, Dmso, uses 68-12-2, Dmf, uses 79-20-9, Methyl acetate 80-73-9, 1,3-Dimethyl-2-imidazolidinone 96-48-0, Butyrolactone 96-49-1, Ethylene carbonate 105-37-3, Ethyl propionate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 109-99-9, Thf, uses 110-71-4, 1,2-Dimethoxyethane 127-19-5, n,n-Dimethylacetamide 141-78-6, Ethyl acetate, uses 143-24-8, Tetraethylene glycol dimethyl ether 554-12-1, Methyl propionate 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 872-50-4, n-Methyl-2-pyrrolidone, uses 4437-85-8, Butylene carbonate 7782-42-5, Graphite, uses 7791-03-9, Lithium perchlorate 9002-86-2, Pvc 9002-88-4, Polyethylene 9003-07-0, Polypropylene 9003-20-7, Polyvinyl acetate 9004-34-6, Cellulose, uses 9004-35-7, Cellulose acetate 9004-36-8 9004-39-1, Cellulose acetate propionate 9010-76-8, Acrylonitrile-vinylidene chloride copolymer 9010-88-2, Ethyl acrylate-methyl methacrylate copolymer 9011-14-7, Pmma 9011-17-0, Hexafluoropropylene-vinylidene fluoride copolymer 12190-79-3, Cobalt lithium oxide colio2 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate 24937-79-9, Pvdf 24968-79-4, Acrylonitrile-methylacrylate copolymer 24980-34-5, Polyethylene sulfide 25014-41-9, Polyacrylonitrile 25086-89-9, Vinyl acetate-vinylpyrrolidone copolymer 25322-68-3, Peo 25322-69-4, Polypropylene oxide 25667-11-2, Polyethylene succinate 26101-52-0 26913-06-4, Poly[imino(1,2-ethanediyl)] 28726-47-8, Poly(Oxymethyleneoxyethylene) 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate 98973-15-0, Poly[bis(2-(2-methoxyethoxyethoxy))phosphazene]
ROLE: DEV (Device component use); USES (Uses)
(lithium secondary battery comprising porous polymer separator film fabricated by spray method)

REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD.

REFERENCE(S):
(1) Asahi Chem Ind Co Ltd; JP A03038226 1991
(2) Celanese Corporation; US A3925525 1975
(3) Fuji Photo Film Co Ltd; JP B108250100 1996
(4) Matsushita Electric Ind Co Ltd; US A5525443 1996
(5) Mitsubishi Rayon Co Ltd; JP A60252716 1985
(6) Nec Corp; JP A12082498 2000
(7) Polymer Processing Research Inst Ltd; US A6051175 2000
(8) The Dow Jones Chemical Company; US A5296185 1994
(9) Tokyo Shibaura Electric Co Toshiba Battery; EP A20398689 1990
(10) Toshiba Battery Co Ltd; JP A09022724 1997

(11) Toshiba Battery Co Ltd; JP A10208775 1998
(12) Us Army; US A4812375 1989

L60 ANSWER 10 OF 23 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2001:851556 HCAPLUS Full-text
DOCUMENT NUMBER: 135:374195
ENTRY DATE: Entered STN: 23 Nov 2001
TITLE: Fabrication of a lithium secondary battery comprising a superfine fibrous polymer separator film
INVENTOR(S): Yun, Kyung Suk; Cho, Byung Won; Jo, Seong Mu; Lee, Wha Seop; Cho, Won Il; Park, Kun You; Kim, Hyung Sun; Kim, Un Seok; Ko, Seok Ku; Chun, Suk Won; Choi, Sung Won
PATENT ASSIGNEE(S): Korea Institute of Science and Technology, S. Korea
SOURCE: PCT Int. Appl., 34 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
INT. PATENT CLASSIF.:
MAIN: H01M010-40
CLASSIFICATION: 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001089022	A1	20011122	WO 2000-KR500	200005 19
W: JP, KR, US				
JP 2003533862	T	20031111	JP 2001-585344	200005 19
US 7279251	B1	20071009	US 2003-276880	200307 11
PRIORITY APPLN. INFO.:			WO 2000-KR500 W	200005 19

PATENT CLASSIFICATION CODES:

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2001089022	ICM	H01M010-40
	IPCI	H01M0010-40 [ICM,7]; H01M0010-36 [ICM,7,C*]
	IPCR	H01M0002-14 [N,C*]; H01M0002-14 [N,A]; H01M0002-16 [I,C*]; H01M0002-16 [I,A]; H01M0010-04 [I,C*]; H01M0010-04 [I,A]; H01M0010-36 [I,C*]; H01M0010-40 [I,A]
	ECLA	H01M002/16B3; H01M002/16E; H01M010/04D; H01M010/04F; H01M010/40B; H01M010/40L2; T01M; T01M
JP 2003533862	IPCI	H01M0002-16 [ICM,7]; H01M0010-40 [ICS,7]; H01M0010-36 [ICS,7,C*]
	IPCR	H01M0002-14 [N,C*]; H01M0002-14 [N,A];

H01M0002-16 [I,C*]; H01M0002-16 [I,A];
H01M0010-04 [I,C*]; H01M0010-04 [I,A];
H01M0010-36 [I,C*]; H01M0010-40 [I,A]

US 7279251 IPCI H01M0002-16 [I,A]
NCL 429/247.000; 429/129.000; 429/248.000; 429/249.000

ABSTRACT:
The present invention provides a lithium secondary battery and its fabrication method. More particularly, the present invention provides a lithium secondary battery comprising a super fine fibrous porous ***polymer*** separator film and its fabrication method, wherein the porous polymer separator film is fabricated by the following process: (a) melting at least one polymer or dissolving at least one polymer with organic solvents to obtain at least one polymeric melt or at least one polymeric solution; (b) adding the obtained polymeric melt or polymeric solution to barrels of an electrospinning machine; and (c) discharging the polymeric melt or polymeric solution onto a substrate using a nozzle to form a porous separator film. The lithium secondary battery of the present invention has the advantages of better adhesion with electrodes, good mech. strength, better performance at low and high temps., and better compatibility with organic electrolyte solution of a lithium secondary battery.

SUPPL. TERM: lithium secondary battery superfine fibrous polymer separator

INDEX TERM: Secondary battery separators
(fabrication of lithium secondary battery comprising superfine fibrous polymer separator film)

INDEX TERM: Alcohols, uses
Polyoxyalkylenes, uses
ROLE: DEV (Device component use); USES (Uses)
(fabrication of lithium secondary battery comprising superfine fibrous polymer separator film)

INDEX TERM: Fluoropolymers, uses
ROLE: MOA (Modifier or additive use); USES (Uses)
(fabrication of lithium secondary battery comprising superfine fibrous polymer separator film)

INDEX TERM: Secondary batteries
(lithium; fabrication of lithium secondary battery comprising superfine fibrous polymer separator film)

INDEX TERM: Fibers
ROLE: DEV (Device component use); USES (Uses)
(spinning, electro-; fabrication of lithium secondary battery comprising superfine fibrous polymer separator film)

INDEX TERM: 67-64-1, Acetone, uses 67-68-5, Dmso, uses 68-12-2, Dmf, uses 79-20-9, Methyl acetate 80-73-9, 1,3-Dimethyl-2-imidazolidinone 96-48-0, Butyrolactone 96-49-1, Ethylene carbonate 105-37-3, Ethyl propionate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 109-99-9, Thf, uses 110-71-4, 1,2-Dimethoxyethane 127-19-5, Dimethyl acetamide 141-78-6, Ethyl acetate, uses 143-24-8, Tetraethyleneglycol dimethyl ether

554-12-1, Methyl propionate 616-38-6, Dimethyl carbonate 623-53-0, Ethylmethyl carbonate 872-50-4, n-Methyl-2-pyrrolidone, uses 4437-85-8, Butylene carbonate 7782-42-5, Graphite, uses 7791-03-9, Lithium perchlorate 9002-86-2, Pvc 9002-88-4, Polyethylene 9003-07-0, Polypropylene 9003-20-7, Polyvinyl acetate 9004-34-6, Cellulose, uses 9004-35-7, Cellulose acetate 9004-36-8 9004-39-1, Cellulose acetate propionate 9010-76-8, Acrylonitrile-vinylidene chloride copolymer 9010-88-2, Ethyl acrylate-methyl methacrylate copolymer 9011-14-7, Pmma 9011-17-0, Hexafluoropropylene-vinylidene fluoride copolymer 12190-79-3, Cobalt lithium oxide colio2 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate 24936-67-2, Polyethylenesulfide 24937-79-9, Pvdf 25014-41-9, Polyacrylonitrile 25086-89-9, Vinyl acetate-vinyl pyrrolidone copolymer 25266-14-2 25322-68-3, Peo 25322-69-4, Polypropylene oxide 25569-53-3, Polyethylenesuccinate 25749-57-9, Acrylonitrile-methacrylic acid copolymer 26101-52-0 26913-06-4, Poly[imino(1,2-ethanediyl)] 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate 98973-15-0
ROLE: DEV (Device component use); USES (Uses)
(fabrication of lithium secondary battery comprising superfine fibrous polymer separator film)

INDEX TERM: 554-13-2, Lithium carbonate 1344-28-1, Alumina, uses 9002-84-0, Ptfe
ROLE: MOA (Modifier or additive use); USES (Uses)
(fabrication of lithium secondary battery comprising superfine fibrous polymer separator film)

INDEX TERM: 1304-28-5, Barium monoxide, uses 1309-48-4, Magnesia, uses 1310-65-2, Lithium hydroxide 1313-59-3, Sodium oxide na2o, uses 7631-86-9, Silica, uses 7789-24-4, Lithium fluoride, uses 12003-67-7, Aluminum lithium oxide allio2 12047-27-7, Barium titanium oxide batio3, uses 12057-24-8, Lithia, uses 13463-67-7, Titania, uses 26134-62-3, Lithium nitride
ROLE: MOA (Modifier or additive use); USES (Uses)
(filling agent; fabrication of lithium secondary battery comprising superfine fibrous polymer separator film)

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD.

REFERENCE(S):
(1) Celanese Corporation; US 3925525 A 1975 HCAPLUS
(2) Fuji Photo Film Co Ltd; JP 08250100 B1 1996
(3) Matsushita Electric Ind Co Ltd; US 5525443 A 1996 HCAPLUS
(4) Mitsubishi Rayon Co Ltd; JP 60252716 A 1985 HCAPLUS
(5) NEC Corp; JP 12082498 A 2000
(6) Polymer Processing Research Inst Ltd; US 6051175 A 2000
(7) The Dow Jones Chemical Company; US 5296185 A 1994 HCAPLUS

(8) Toshiba Battery Co Ltd; JP 09022724 A 1997 HCAPLUS

L60 ANSWER 11 OF 23 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2004:877585 HCAPLUS Full-text
DOCUMENT NUMBER: 142:77499
ENTRY DATE: Entered STN: 22 Oct 2004
TITLE: Fabrication of porous polymer electrolyte for secondary batteries
INVENTOR(S): Lee, Yeong Gi; Park, Jeong Gi
PATENT ASSIGNEE(S): Korea Advanced Institute of Science and Technology, S. Korea
SOURCE: Repub. Korean Kongkae Taeho Kongbo, No pp. given
CODEN: KRXXA7
DOCUMENT TYPE: Patent
LANGUAGE: Korean
INT. PATENT CLASSIF.:
MAIN: H01M010-38
CLASSIFICATION: 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
KR 2001037901	A	20010515	KR 1999-45645	19991020
PRIORITY APPLN. INFO.:			KR 1999-45645	19991020

PATENT CLASSIFICATION CODES:

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
KR 2001037901	ICM	H01M010-38
	IPCI	H01M0010-38 [ICM,7]; H01M0010-36 [ICM,7,C*]
	IPCR	H01M0010-36 [I,C*]; H01M0010-38 [I,A]

ABSTRACT:
This porous polymer electrolyte has superior ionic conductivity, electrochem. stability and interfacial properties. The ***electrolyte*** composition comprises a porous polymer matrix in which an ionomer, copolymd. methyl-methacrylate and basic salt maleate, is blended with vinylidene fluoride polymer, and a liquid electrolyte consisting of Li salts in an organic solvent which infiltrates the pores of the polymer matrix. Fabrication entails blending the ionomer, copolymd. methyl-methacrylate and basic salt maleate and the vinylidene fluoride polymer using a cosolvent, obtaining a polymer film after adding a plasticizer to the blended solution for producing porous structures, casting the homogeneous solution, manufactured by adding inorg. ***materials*** to the solution, onto a glass plate and evaporating the cosolvent from the cast solution The porous polymer ***film*** is obtained by immersing the polymer film in MeOH or Et2O, thereby selectively dissolving the plasticizer in the film, infiltrating the porous polymer film with a liquid ***electrolyte*** containing a Li salt, 5-30% based on the polymer weight The salt is selected from Li perchlorate, Li hexafluoro phosphate, Li triflate, Li bis(trifluoro methyl-sulfonyl amide) and Li tetrafluoroborate and dissolving it in a mixed solvent, 50 to 300% based on the polymer weight The mixed solvent can contain ethylene

carbonate , propylene carbonate, di-Me carbonate, di-Et carbonate, γ-butyrolactone, ethyl-Me carbonate, dimethoxy ethane, diethoxy ethane and 2-Me ***THF.***

SUPPL. TERM: porous polymer electrolyte lithium battery
INDEX TERM: Secondary batteries
(lithium; porous polymer electrolyte for secondary batteries)
INDEX TERM: Polymer electrolytes
Porous materials
(porous polymer electrolyte for secondary batteries)
INDEX TERM: Fluoropolymers, uses
ROLE: DEV (Device component use); USES (Uses)
(porous polymer electrolyte for secondary batteries)
INDEX TERM: 96-47-9, 2-Methyl tetrahydrofuran 96-48-0, γ-Butyrolactone 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 110-71-4 616-38-6, Dimethyl carbonate 623-53-0, Ethyl-methyl carbonate 73506-93-1, Diethoxy ethane
ROLE: DEV (Device component use); USES (Uses)
(electrolyte containing; porous polymer electrolyte for secondary batteries with)
INDEX TERM: 7791-03-9, Lithium perchlorate 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium hexafluoro phosphate 33454-82-9, Lithium triflate 90076-65-6, Lithium bis(trifluoro methyl-sulfonyl amide)
ROLE: DEV (Device component use); USES (Uses)
(electrolyte; porous polymer electrolyte for secondary batteries with)
INDEX TERM: 60-29-7, uses 67-56-1, Methanol, uses
ROLE: NUU (Other use, unclassified); USES (Uses)
(in fabrication of porous polymer electrolyte for secondary batteries)
INDEX TERM: 80-62-6, Methyl-methacrylate 24937-79-9, Poly(vinylidene fluoride)
ROLE: DEV (Device component use); USES (Uses)
(porous polymer electrolyte for secondary batteries)

L60 ANSWER 12 OF 23 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2001:336682 HCAPLUS Full-text
DOCUMENT NUMBER: 134:341332
ENTRY DATE: Entered STN: 11 May 2001
TITLE: Production of transparent electrically conducting film with large specific surface using porous supporting material
INVENTOR(S): Hara, Susumu; Abe, Naoto; Yakushiji, Sotaro
PATENT ASSIGNEE(S): Japan Gore Tex Inc., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 13 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
INT. PATENT CLASSIF.:
MAIN: H01B005-14
SECONDARY: B32B005-18; B32B007-02; B32B027-30; C08J007-04;

C08J009-00; C08K003-00; C08L101-00; H01B013-00
CLASSIFICATION: 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 76
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001126539	A	20010511	JP 1999-305969	19991027
PRIORITY APPLN. INFO.:			JP 1999-305969	19991027

PATENT CLASSIFICATION CODES:

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 2001126539	ICM	H01B005-14
	ICS	B32B005-18; B32B007-02; B32B027-30; C08J007-04; C08J009-00; C08K003-00; C08L101-00; H01B013-00
	IPCI	H01B0005-14 [ICM,7]; B32B0005-18 [ICS,7]; B32B0007-02 [ICS,7]; B32B0027-30 [ICS,7]; C08J0007-04 [ICS,7]; C08J0009-00 [ICS,7]; C08K0003-00 [ICS,7]; C08L0101-00 [ICS,7]; H01B0013-00 [ICS,7]
	IPCR	C08J0007-00 [I,C*]; C08J0007-04 [I,A]; B32B0005-18 [I,C*]; B32B0005-18 [I,A]; B32B0007-02 [I,C*]; B32B0007-02 [I,A]; B32B0027-30 [I,C*]; B32B0027-30 [I,A]; C08J0009-00 [I,C*]; C08J0009-00 [I,A]; C08K0003-00 [I,C*]; C08K0003-00 [I,A]; C08L0101-00 [I,C*]; C08L0101-00 [I,A]; H01B0005-14 [I,C*]; H01B0005-14 [I,A]; H01B0013-00 [I,C*]; H01B0013-00 [I,A]

ABSTRACT:
Title elec. conducting film is prepared using a porous material to support conductive inorg. compds. Thus, a transparent conductive substrate OTEC-110B-125N was laminated with a stretched porous poly(tetrafluoro ethylene) sheet coated with polyvinylbutyral composition containing indium tin oxide particles, showing surface resistivity 9.8 Ω/square, and light transmission 56% and 63% (wetting conditions).

SUPPL. TERM: porous PTFE elec conductive film specific surface
INDEX TERM: Transparent films
(elec. conductive; preparation of transparent elec. conductive film with large sp. surface using porous supporting material)
INDEX TERM: Electric conductors
(films, transparent; preparation of transparent elec. conductive film with large sp. surface using porous supporting material)
INDEX TERM: Binders
Calcination
Electrolysis
Polymer morphology
Porous materials
(preparation of transparent elec. conductive film with

large sp. surface using porous supporting material)
INDEX TERM: Polyvinyl butyrals
ROLE: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(preparation of transparent elec. conductive film with large sp. surface using porous supporting material)
INDEX TERM: Fluoropolymers, uses
ROLE: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(preparation of transparent elec. conductive film with large sp. surface using porous supporting material)
INDEX TERM: 7782-41-4, Fluorine, uses
ROLE: TEM (Technical or engineered material use); USES (Uses)
(dopant; preparation of transparent elec. conductive film with large sp. surface using porous supporting material)
INDEX TERM: 18282-10-5, Tin dioxide
ROLE: TEM (Technical or engineered material use); USES (Uses)
(fluorine-doped; preparation of transparent elec. conductive film with large sp. surface using porous supporting material)
INDEX TERM: 429-42-5, Tetrabutylammonium tetrafluoroborate
ROLE: NUU (Other use, unclassified); USES (Uses)
(preparation of transparent elec. conductive film with large sp. surface using porous supporting material)
INDEX TERM: 9002-84-0, PTFE
ROLE: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(preparation of transparent elec. conductive film with large sp. surface using porous supporting material)
INDEX TERM: 1314-13-2, Zinc oxide, uses 12673-86-8, Antimony tin oxide 50926-11-9, ITO 337912-56-8, OTEC 110B125N
ROLE: TEM (Technical or engineered material use); USES (Uses)
(preparation of transparent elec. conductive film with large sp. surface using porous supporting material)

L60 ANSWER 13 OF 23 COMPENDEX COPYRIGHT 2008 EEI on STN
ACCESSION NUMBER: 2002(24):1758 COMPENDEX Full-text
TITLE: Macroporous morphology of titania films prepared by sol-gel dip-coating method from a system containing poly(ethylene glycol) and poly(vinylpyrrolidone).
AUTHOR: Kajihara, Koichi (HTEAMP Exploratory Res. for Adv. Technology Japan Science and Technology Corp., Kawasaki 213-0012, Japan); Nakanishi, Kazuki
SOURCE: Journal of Materials Research v 16 n 1 January 2001 2001.p 58-66
SOURCE: Journal of Materials Research v 16 n 1 January 2001 2001.p 58-66
CODEN: JMREEE ISSN: 0884-2914
PUBLICATION YEAR: 2001
DOCUMENT TYPE: Journal
TREATMENT CODE: Theoretical; Experimental
LANGUAGE: English
ABSTRACT: Macroporous titania (TiO_2) films were prepared by a sol-gel dip coating

method from a system containing poly(ethylene glycol) (PEG) and poly(vinylpyrrolidone) (PVP). The thickness of the macroporous films increased with an increase in PVP concentration, but the excess incorporation of PVP suppressed the macroscopic phase separation and enhanced the formation of macroscopic cracks. The porosity and the domain size were simply determined by PEG concentration. Although both PEG and PVP are hydrogen-bonding polymers having proton-accepting ability, preparation of macroporous TiO2 films was unsuccessful in systems containing only PVP as a polymer. Macroporous TiO2 films having interconnected pore structure as thick as 1 mum were successfully prepared by repeating the deposition several times. 31 Refs. CLASSIFICATION CODE: 714.2 Semiconductor Devices and Integrated Circuits; 542.3 Titanium and Alloys; 931.2 Physical Properties of Gases, Liquids and Solids; 804 Chemical Products Generally; 815.1.1 Organic Polymers; 813.2 Coating Materials

CONTROLLED TERM: *Thick films; Pore size; Morphology; Protons; Microcracking; Microporosity; Hydrogen bonds; Titanium; Microporous materials; Sol-gels; Polyethylene glycols; Plastic coatings

SUPPLEMENTARY TERM: Macroporous titania films

ELEMENT TERM: O*Ti; TiO; Ti cp; cp; O cp

L60 ANSWER 14 OF 23 JAPIO (C) 2008 JPO on STN

ACCESSION NUMBER: 1999-339866 JAPIO Full-text

TITLE: PHOTOELECTRIC CONVERSION ELEMENT AND PIGMENT SENSITIZING SOLAR BATTERY

INVENTOR: INOUE YUKO; OBATA TAKATSUGU; KAN REIGEN; YONEDA TETSUYA; UI KOICHI

PATENT ASSIGNEE(S): SHARP CORP

PATENT INFORMATION:

PATENT NO	KIND	DATE	ERA	MAIN IPC
JP 11339866	A	19991210	Heisei	H01M014-00

APPLICATION INFORMATION

STN FORMAT: JP 1998-146790 19980528

ORIGINAL: JP10146790 Heisei

PRIORITY APPLN. INFO.: JP 1998-146790 19980528

SOURCE: PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1999

INT. PATENT CLASSIF.:

MAIN: H01M014-00

SECONDARY: H01L031-04

ABSTRACT:

PROBLEM TO BE SOLVED: To reduce a leakage of an electrode and prevent a short circuit between a working film and a counter electrode by providing a working electrode having a semiconductor film covered with a pigment, the counter electrode arranged to face it, and a solid film made of a polymer porous film pinched between them, and holding the electrolyte in the voids of the solid film. SOLUTION: A working electrode 10 is provided with a light transmitting conductive layer 2 provided on the surface of a glass 1 and a semiconductor layer 3 covered with a pigment on it to form a photo-electrode. A counter electrode 11 is provided with a light transmitting conductive layer 7 carrying platinum 6 on the surface of a glass 8. An electrolyte 4 is filled in the voids of the semiconductor layer 3 and a solid layer 5 made of a polymer porous film. The polymer porous film made of polyethylene can be used for the solid layer 5. A semiconductor adsorbing the pigment is not limited in particular as far as it

is generally used as a photoelectric converting material, and titanium oxide or zinc oxide can be used, for example. COPYRIGHT: (C)1999,JPO

L60 ANSWER 15 OF 23 JAPIO (C) 2008 JPO on STN
ACCESSION NUMBER: 1999-080395 JAPIO Full-text
TITLE: POROUS FILM AND SEPARATOR FOR NONAQUEOUS ELECTROLYTE CELL OR BATTERY
INVENTOR: TOJO YASUHISA; HIGUCHI HIROYUKI
PATENT ASSIGNEE(S): NITTO DENKO CORP
PATENT INFORMATION:

PATENT NO	KIND	DATE	ERA	MAIN IPC
JP 11080395	A	19990326	Heisei	C08J009-00

APPLICATION INFORMATION
STN FORMAT: JP 1997-243917 19970909
ORIGINAL: JP09243917 Heisei
PRIORITY APPLN. INFO.: JP 1997-243917 19970909
SOURCE: PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1999
INT. PATENT CLASSIF.:
MAIN: C08J009-00
SECONDARY: B32B005-18; H01M002-16; H01M002-18; H01M006-16; H01M010-40

ABSTRACT:
PROBLEM TO BE SOLVED: To provide a separator for a nonaqueous electrolyte cell or battery, hardly causing internal short-circuiting due to the penetration or the like of electroconductive particles and having a high surface hardness and to obtain a porous film suitable for composing the separator. SOLUTION: This porous film having a surface protecting layer is obtained by using a polyolefin porous film such as polyethylene or polypropylene as a substrate, coating at least one surface of the substrate with a mixture containing inorganic fine particles such as aluminum oxide or silicon dioxide and a resin to be a binder and then ultrasonically treating the resultant coated substrate in ethanol.
COPYRIGHT: (C)1999,JPO

L60 ANSWER 16 OF 23 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1997:479514 HCAPLUS Full-text
DOCUMENT NUMBER: 127:138049
ENTRY DATE: Entered STN: 01 Aug 1997
TITLE: All-solid-state dye-sensitized TiO2 solar cell with a solid polymer electrolyte and its long-term stability
AUTHOR(S): Matsumoto, Masamitsu; Miyazaki, Hiromitsu; Kumashiro, Yoshimasa
CORPORATE SOURCE: R&D Application Lab., Ishihara Sangyo Kaisha Ltd., Technical Res. Inst., Kusatsu, 525, Japan
SOURCE: Nippon Kagaku Kaishi (1997), (7), 484-488
CODEN: NKAKB8; ISSN: 0369-4577
PUBLISHER: Nippon Kagakkai
DOCUMENT TYPE: Journal
LANGUAGE: Japanese
CLASSIFICATION: 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38

ABSTRACT:

An all solid-state dye-sensitized TiO2 photoelectrochem. cell
was fabricated with solid polymer electrolyte. Oligoethylene
glycol methacrylate (MEO) and lithium iodide were ued as a solid polymer
electrolyte. Ethylene glycol (E.G.) or propylene
carbonate (P.C.) was added to the polymer to enhance the
performance. In order to make a tight contact with the TiO2
porous film, the solid polymer
electrolyte was polymerized after immersing the porous film in the
monomer solution The elec. conductivity of polymer solid electrolytes
was found to be over 1 mS cm-1. The short circuit current of the cell
which contained P.C. was two times higher than the one containing E.G. The
cell in which MEO was polymerized by thermal radical polymerization exhibited
better
current-voltage characteristics than that produced by photo induced
radical polymerization For the cell prepared by thermal radical polymerization
with
P.C., the open circuit voltage, short circuit current, fill factor, and
energy conversion efficiency were 0.63 V, 2.54 mA/cm2, 0.69, and 1.72%,
resp. under photo irradiation of 1000 W/m2. A continuous photo irradiation test
was carried out with a UV- and IR-filtered 150 W halogen lamp for over
8000 h. Though in the initial 2000 h the short circuit current decreased
to 70%, no further decrease was observed by the elongated irradiation, proving
the stability of the sensitizing dye. No leakage of the
electrolyte was observed during this test. The long-term durability
of the cell was enhanced dramatically.

SUPPL. TERM: solar photoelectrochem cell dye sensitized titania
INDEX TERM: Photoelectrochemical cells
(all-solid-state dye-sensitized TiO2
solar cell with a solid polymer electrolyte
and its long-term stability)
INDEX TERM: 13463-67-7, Titania, uses
ROLE: DEV (Device component use); USES (Uses)
(all-solid-state dye-sensitized TiO2
solar cell with a solid polymer electrolyte
and its long-term stability)
INDEX TERM: 107-21-1, Ethylene glycol, uses 108-32-7,
Propylene carbonate
ROLE: MOA (Modifier or additive use); USES (Uses)
(electrolyte containing; all-solid-state
dye-sensitized TiO2 solar cell with a
solid polymer electrolyte and its
long-term stability)
INDEX TERM: 10377-51-2, Lithium iodide
ROLE: DEV (Device component use); USES (Uses)
(electrolyte; all-solid-state
dye-sensitized TiO2 solar cell with a
solid polymer electrolyte and its
long-term stability)
INDEX TERM: 9056-77-3, Polyethylene glycol methacrylate
ROLE: DEV (Device component use); USES (Uses)
(oligo-, electrolyte; all-solid-state
dye-sensitized TiO2 solar cell with a
solid polymer electrolyte and its
long-term stability)

L60 ANSWER 17 OF 23 COMPENDEX COPYRIGHT 2008 EEI on STN DUPLICATE 3
ACCESSION NUMBER: 1997(10):915 COMPENDEX Full-text
TITLE: Dye sensitized TiO2
photoelectrochemical cell constructed with

polymer solid electrolyte.
AUTHOR: Matsumoto, M. (R&D Lab of Functional Material Div Ishihara Sangyo Kaisha, Shiga, Jpn); Miyazaki, H.; Matsuhiro, K.; Kumashiro, Y.; Takaoka, Y.
SOURCE: Solid State Ionics v 89 n 3-4 Aug 2 1996.p 263-267
SOURCE: Solid State Ionics v 89 n 3-4 Aug 2 1996.p 263-267
CODEN: SSIOD3 ISSN: 0167-2738
PUBLICATION YEAR: 1996
DOCUMENT TYPE: Journal
TREATMENT CODE: Experimental; Application
LANGUAGE: English
ABSTRACT: We report the first all solid-state dye sensitized TiO2 photoelectrochemical cell with polymer solid electrolyte. Oligoethylene glycol methacrylate was used as a polymer solid electrolyte.Ethylene glycol and lithium iodide were added to it to enhance the performance.In order to make a tight contact with the TiO2 porous film, the polymer solid electrolyte was prepared by radical polymerization after immersing the porous film in the monomer solution.This polymer electrolyte junction cell shows continuous photocurrent.The conversion efficiency of the cell was 0.49% for irradiation of 1000 W/m2.(Author abstract) 10 Refs.
CLASSIFICATION CODE: 702.1 Electric Batteries; 741.3 Optical Devices and Systems; 804.2 Inorganic Components; 815.1.1 Organic Polymers; 701.1 Electricity: Basic Concepts and Phenomena; 714.2 Semiconductor Devices and Integrated Circuits
CONTROLLED TERM: *Photoelectrochemical cells; Titanium oxides; Polyesters; Free radical polymerization; Porous materials; Thin films; Photoelectricity; Solid electrolytes
SUPPLEMENTARY TERM: Polymer solid electrolyte; Oligoethylene glycol methacrylate; Porous film; Photocurrent
ELEMENT TERM: O*Ti; TiO2; Ti cp; cp; O cp

L60 ANSWER 18 OF 23 JAPIO (C) 2008 JPO on STN
ACCESSION NUMBER: 1995-065624 JAPIO Full-text
TITLE: PROTON CONDUCTIVE THIN FILM ELECTROLYTE
INVENTOR: KOSEKI KEIICHI; IWASAKI HIROYUKI; IZUMI YUZO; OTO NATSUKO; SAKURADA SATOSHI
PATENT ASSIGNEE(S): TONEN CORP
PATENT INFORMATION:

PATENT NO	KIND	DATE	ERA	MAIN IPC
JP 07065624	A	19950310	Heisei	H01B001-06

APPLICATION INFORMATION
STN FORMAT: JP 1993-214472 19930830
ORIGINAL: JP05214472 Heisei
PRIORITY APPLN. INFO.: JP 1993-214472 19930830
SOURCE: PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1995
INT. PATENT CLASSIF.:
MAIN: H01B001-06
SECONDARY: C08K003-00; C08L101-00; H01M008-02; H01M008-10
ABSTRACT:
PURPOSE: To improve the ion conductivity of a thin film electrolyte.

CONSTITUTION: A proton conductive solid electrolyte [H<SB>3</SB>PO<SB>4</SB>(WO<SB>3</SB>)<SB>12</SB>/29H<SB>2</SB>O, ZrO(H<SB>2</SB>SO<SB>4</SB>)<SB>2</SB>/7H<SB>2</SB>O, H<SB>3</SB>OUO<SB>2</SB>PO<SB>4</SB>/3H<SB>2</SB>O, etc.] is contained in or held by a high polymer fine porous film (normally, a carrier of alumina or the like is used,) and a proton conductive electrolytic solution is filled in the voids and is fixed. Ion conductivity level of no less than 10<SP>-3</SP>S/cm is thus achieved. COPYRIGHT: (C)1995,JPO

L60 ANSWER 19 OF 23 JAPIO (C) 2008 JPO on STN
ACCESSION NUMBER: 1984-094383 JAPIO Full-text
TITLE: AIR BATTERY
INVENTOR: SUZUKI NOBUKAZU; IMAI ATSUO; TAKAMURA TSUTOMU
PATENT ASSIGNEE(S): TOSHIBA CORP
PATENT INFORMATION:

PATENT NO	KIND	DATE	ERA	MAIN IPC
JP 59094383	A	19840531	Showa	H01M012-06

APPLICATION INFORMATION
STN FORMAT: JP 1982-202035 19821119
ORIGINAL: JP57202035 Showa
PRIORITY APPLN. INFO.: JP 1982-202035 19821119
SOURCE: PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1984
INT. PATENT CLASSIF.:
MAIN: H01M012-06
ABSTRACT:

PURPOSE: To provide an air battery that restricts the permeation of steam and carbonic acid gas in the air into the inner part, enables discharge for a long period of time, has excellent retention characteristics, and fully prevents the leakage of an alkaline electrolyte by using a composite film with excellent oxygen gas selection transmission capacity. CONSTITUTION: The air hole 8 of a metal air battery is blocked up from the inner part of the battery by using a composite film 9 with two-layer structure in which a thin layer made of metal oxide provided with oxygen adsorption capacity is integratedly attached to one side of a porous film with micropores of 0.1μm or less in pore diameter. For example, such a porous film can include a porous fluororesin film, porous polycarbonate film, porous cellulose ester film, and porous polyethylene film. A metal oxide with rutile crystal structure is represented by a chemical expression AO<SB>2</SB>. The oxide whose coordination polyhedron is a regular octahedron shares the edge of the octahedron and combines an aggregate that is arranged unidimensionally, and, to be concrete, can include tin dioxide, titanium dioxide, banadium dioxide, etc. Through this composite film has an extremely thin thickness, it will not transmit steam in the air. As a result, the film has an excellent oxygen gas selection transmission capacity. COPYRIGHT: (C)1984,JPO&Japio

L60 ANSWER 20 OF 23 JAPIO (C) 2008 JPO on STN
ACCESSION NUMBER: 1984-094382 JAPIO Full-text
TITLE: AIR BATTERY
INVENTOR: SUZUKI NOBUKAZU; IMAI ATSUO; TAKAMURA TSUTOMU
PATENT ASSIGNEE(S): TOSHIBA CORP
PATENT INFORMATION:

PATENT NO	KIND	DATE	ERA	MAIN IPC

PATENT NO	KIND	DATE	ERA	MAIN IPC
JP 59094382	A	19840531	Showa	H01M012-06

APPLICATION INFORMATION
STN FORMAT: JP 1982-202034 19821119
ORIGINAL: JP57202034 Showa
PRIORITY APPLN. INFO.: JP 1982-202034 19821119
SOURCE: PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1984
INT. PATENT CLASSIF.:
MAIN: H01M012-06
ABSTRACT:

PURPOSE: To provide an air battery that restricts the permeation of steam and carbonic acid gas in the air into the inner part, enables discharge for a long period of time, has excellent retention characteristics, and fully prevents the leakage of an alkaline electrolyte by using a composite film with excellent oxygen gas selection transmission capacity. CONSTITUTION: The air hole 8 of a metal air battery is blocked up from the inner part of the battery by using a composite film 9 with two-layer structure in which a thin layer made of metal oxide provided with oxygen adsorption capacity is integratedly attached to one side of a porous film with micropores of 0.1μm or less in pore diameter. For example, such a porous film can include a porous fluororesin film, porous polycarbonate film, porous cellulose ester film, and polyethylene film. A metal oxide containing water or hydrate can include tin dioxide, zinc oxide, aluminum oxide, manganese oxide, calsium oxide, strontium oxide, barium oxide, titanium dioxide,
silicate dioxide, and such. Though this composite film has an extremely thin thickness, it will not transmit steam in the air. As a result, the film has an excellent oxygen gas selection transmission capacity.
COPYRIGHT: (C)1984,JPO&Japio

L60 ANSWER 21 OF 23 JAPIO (C) 2008 JPO on STN
ACCESSION NUMBER: 1983-018871 JAPIO Full-text
TITLE: ZINC-NICKEL BATTERY
INVENTOR: IKEDA HIROTAKA; TAKEUCHI KENICHI; SHIROSAKI ISAO
PATENT ASSIGNEE(S): YUASA BATTERY CO LTD
PATENT INFORMATION:

PATENT NO	KIND	DATE	ERA	MAIN IPC
JP 58018871	A	19830203	Showa	H01M002-16

APPLICATION INFORMATION
STN FORMAT: JP 1981-118057 19810727
ORIGINAL: JP56118057 Showa
PRIORITY APPLN. INFO.: JP 1981-118057 19810727
SOURCE: PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1983
INT. PATENT CLASSIF.:
MAIN: H01M002-16
ABSTRACT:

PURPOSE: To increase the oxygen-gas absorbing function of a negative zinc electrode, and extend the charge-and-discharge cycle life of a zinc-nickel battery by providing the separator of the battery with hydrophobic film parts. CONSTITUTION: A separator is prepared by providing a plural number of holes 2 with 1mmϕ in a porous titanium- oxide film 1 which is bound with a non-woven nylon fabric, two pieces of porous expanded polypropylene films and

polytetrafluoroethylene powder, and superposing punched disk-like porous 3mmϕ polytetrafluoroethylene powder, and superposing punched disk-like porous 3mmϕ polytetrafluoroethylene films 3 over the holes 2, being followed by making the films 3 to be in close contact with the sheet of the porous titanium-oxide film 1 so that the levels of the films 3 becomes the same as that of the above sheet by means of a pressing tool 4. The distance (L) between the holes 2 is made in the range of 2∼15cm, since only a small effect can be realized when the distance (L) is above 15cm, and an effective area having an ionic conductivity decreases when the distance (L) is below 2cm. In addition, the hole diameter of the porous hydrophilic film 1 is restricted within the range of 0.1∼5mmϕ, the diameter of the porous hydrophobic films is restricted within the range of 0.2∼10mmϕ, and the porous hydrophobic films are made larger than the holes of the porous hydrophilic film 1.

L60 ANSWER 22 OF 23 JAPIO (C) 2008 JPO on STN
ACCESSION NUMBER: 2003-173769 JAPIO Full-text
TITLE: NONAQUEOUS ELECTROLYTE SECONDARY BATTERY
INVENTOR: SAITO SATORU
PATENT ASSIGNEE(S): JAPAN STORAGE BATTERY CO LTD
PATENT INFORMATION:

PATENT NO	KIND	DATE	ERA	MAIN IPC
JP 2003173769	A	20030620	Heisei	H01M004-02

APPLICATION INFORMATION
STN FORMAT: JP 2001-371510 20011205
ORIGINAL: JP2001371510 Heisei
PRIORITY APPLN. INFO.: JP 2001-371510 20011205
SOURCE: PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 2003
INT. PATENT CLASSIF.:
MAIN: H01M004-02
SECONDARY: H01M002-16; H01M010-40
ABSTRACT:

PROBLEM TO BE SOLVED: To aim at improvement of safety and discharging characteristics of a nonaqueous electrolyte secondary battery.
SOLUTION: With the nonaqueous electrolyte secondary battery provided with positive electrode combined agent layers 15 including positive electrode active material 15 and negative electrode combined agent layers 19 including negative electrode active material and provided with a porous polymer film 5 between each positive electrode combined agent layer 15 and the negative electrode combined agent layer 19, at least either the positive electrode combined agent layer 15 or the negative electrode combined agent layer 19 is structured to include inorganic solid electrolyte powder. Further, a porous polymer can be contained in at least either the positive electrode combined agent layer 15 or the negative electrode combined agent layer 19. Inorganic solid electrolyte can be contained in the porous polymer film 5 between the positive electrode combined agent layer 15 and the negative electrode combined agent layer 19.

L60 ANSWER 23 OF 23 JAPIO (C) 2008 JPO on STN
ACCESSION NUMBER: 2003-051305 JAPIO Full-text

TITLE: ELECTRODE FOR NONAQUEOUS ELECTROLYTE BATTERY, ITS MANUFACTURING METHOD AND NONAQUEOUS ELECTROLYTE BATTERY USING THE SAME
INVENTOR: TAKADA KAZUNORI; KONDO SHIGEO; WATANABE JUN; SUGANO RIYOUJI; INADA TARO; KAJIYAMA AKIHISA; SASAKI HIDEKI
PATENT ASSIGNEE(S): JAPAN STORAGE BATTERY CO LTD
NATIONAL INSTITUTE FOR MATERIALS SCIENCE
DENKI KAGAKU KOGYO KK
TODA KOGYO CORP
PATENT INFORMATION:

PATENT NO	KIND	DATE	ERA	MAIN IPC
JP 2003051305	A	20030221	Heisei	H01M004-02

APPLICATION INFORMATION
STN FORMAT: JP 2001-238408 20010806
ORIGINAL: JP2001238408 Heisei
PRIORITY APPLN. INFO.: JP 2001-238408 20010806
SOURCE: PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 2003
INT. PATENT CLASSIF.:
MAIN: H01M004-02
SECONDARY: H01M004-04; H01M010-40
ABSTRACT:
PROBLEM TO BE SOLVED: To provide a fully solid nonaqueous electrolyte secondary battery having high safety and high performance.
SOLUTION: This electrode for the nonaqueous electrolyte battery is characterized by having an electrode active material coated with a porous polymer film, and an inorganic solid electrolyte. The manufacturing method thereof is characterized by carrying out a pore forming treatment after immersing the active material in a polymer solution followed by a pressing process after mixing the active material with the inorganic solid electrolyte.

=> d his nofile

(FILE 'HOME' ENTERED AT 11:43:23 ON 20 MAY 2008)

FILE 'HCAPLUS' ENTERED AT 11:43:49 ON 20 MAY 2008
L1 1 SEA ABB=ON PLU=ON US20040214088/PN
D SCA
D IALL
SEL RN

FILE 'REGISTRY' ENTERED AT 11:44:22 ON 20 MAY 2008
L2 43 SEA ABB=ON PLU=ON (105-58-8/BI OR 107-31-3/BI OR 108-32-7/BI OR 109-94-4/BI OR 109-99-9/BI OR 110-71-4/BI OR 12003-67-7/BI OR 1344-28-1/BI OR 13463-67-7/BI OR 14283-07-9/BI OR 14807-96-6/BI OR 21324-40-3/BI OR 24937-79-9/BI OR 25014-41-9/BI OR 25322-68-3/BI OR 25322-69-4/BI OR 28960-88-5/BI OR 33454-82-9/BI OR 616-38-6/BI OR 623-53-0/BI OR 67-64-1/BI OR 67-68-5/BI OR 68-12-2/BI OR 7631-86-9/BI OR 7791-03-9/BI OR

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                872-50-4/BI OR 9002-84-0/BI OR 9002-86-2/BI OR 9002-88-4/
                BI OR 9003-07-0/BI OR 9003-20-7/BI OR 9003-21-8/BI OR
                9003-32-1/BI OR 9003-42-3/BI OR 9003-49-0/BI OR 9003-63-8
                /BI OR 9004-34-6/BI OR 90076-65-6/BI OR 9011-14-7/BI OR
                9011-17-0/BI OR 96-47-9/BI OR 96-48-0/BI OR 96-49-1/BI)
                D SCA

     FILE 'HCAPLUS' ENTERED AT 11:50:12 ON 20 MAY 2008
L3              QUE ABB=ON  PLU=ON  POLYMER OR COPOLYMER OR RESIN
                HOMOPOLYMER OR TERPOLYMER
L4              QUE ABB=ON  PLU=ON  POLYETHYLENE OR PE OR POLYPROPYLENE
                OR PP OR POLYIMIDE OR PI OR POLYSULFONE OR PSU OR
                POLYURETHANE OR PUR
L5              QUE ABB=ON  PLU=ON  POLYVINYLCHLORIDE OR PVC OR CELLULOSE
                 OR NYLON OR POLYACRYLONITRILE OR PAN OR POLYVINYLIDENE(W
                )FLUORIDE OR POLY(W)VINYLIDENE(W)FLURIDE OR PVDF
L6              QUE ABB=ON  PLU=ON  POLYVINYLCHLORIDE OR PVC OR CELLULOSE
                 OR NYLON OR POLYACRYLONITRILE OR PAN
L7              QUE ABB=ON  PLU=ON  (POLYVINYLIDENE OR POLY(W)VINYLIDENE)
                (W)FLURIDE OR PVDF OR POLYTETRAFLUOROETHYLENE OR PTFE
L8              QUE ABB=ON  PLU=ON  (INORG# OR INORGANIC)(2A)(COMPOUND
                OR MATERIAL OR CHEMICAL OR ADDITIVE OR AGENT)
L9              QUE ABB=ON  PLU=ON  SILICA# OR (SILICON OR SI)(W)(OXIDE#
                OR DIOXIDE# OR OXIDIZ?) OR SIO2
L10             QUE ABB=ON  PLU=ON  TALC OR MAGNESIUM(A)SILICATE OR
                TALCUM
L11             QUE ABB=ON  PLU=ON  ALUMINA OR AL2O3 OR (ALUMINUM OR
                AL)(W)OXIDE#
L12             QUE ABB=ON  PLU=ON  LIALO2 OR TIO2 OR (TITANIUM OR
                TI)(A)(OXIDE OR DIOXIDE) OR ZEOLITE OR ALUMINOSILICATE
L13        163398 SEA ABB=ON  PLU=ON  (L3 OR L4 OR L5 OR L6 OR L7)(2A)(FILM
                 OR THINFILM)
L14          3045 SEA ABB=ON  PLU=ON  (PORO? OR PORE OR PERVIOUS)(2A)L13
L15           336 SEA ABB=ON  PLU=ON  L14 AND (L8 OR L9 OR L10 OR L11 OR
                L12)
L16             QUE ABB=ON  PLU=ON  MORPHOL?
L17            18 SEA ABB=ON  PLU=ON  L15 AND L16
                D KWIC 1-2
L18             QUE ABB=ON  PLU=ON  ELECTROLY?
L19            43 SEA ABB=ON  PLU=ON  (L15 OR L17) AND L18
L20             4 SEA ABB=ON  PLU=ON  L17 AND L19
L21             QUE ABB=ON  PLU=ON  (ETHLENE OR PROPYLENE OR DIMETHYL OR
                DIETHYL OR METHYLETHYL)(A)CARBONATE
L22             QUE ABB=ON  PLU=ON  TETRAHYDROFURAN OR 2(W)METHYLTETRAHYD
                ROFURAN OR DIMETHOXYETHANE OR METHYLFORMATE OR ETHYLFORMA
                TE OR (METHYL OR ETHYL)(A)FORMATE OR GAMMA(W)BUTYROLACTON
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L23             7 SEA ABB=ON  PLU=ON  L19 AND (L21 OR L22)
L24            10 SEA ABB=ON  PLU=ON  L20 OR L23

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L26          2029 SEA ABB=ON  PLU=ON  (PORO? OR PORE OR PERVIOUS)(2A)L13
L27           203 SEA ABB=ON  PLU=ON  L26 AND (L8 OR L9 OR L10 OR L11 OR
                L12)
L28             1 SEA ABB=ON  PLU=ON  L27 AND L16
L29            49 SEA ABB=ON  PLU=ON  (L27 OR L28) AND L18
L30            22 SEA ABB=ON  PLU=ON  (L28 OR L29) AND (L21 OR L22)
                D L25 IFULL
L31            76 SEA ABB=ON  PLU=ON  (FIRST? OR 1ST OR 1(W)ST OR BASE OR
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                PRIMARY?)(2A)L26
L32           41 SEA ABB=ON  PLU=ON  (MULTI OR MULTIPL? OR PLURAL? OR TWO
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L33            1 SEA ABB=ON  PLU=ON  L30 AND (L31 OR L32)
L34            1 SEA ABB=ON  PLU=ON  L28 OR L33

     FILE 'HCAPLUS' ENTERED AT 12:45:42 ON 20 MAY 2008
L35            1 SEA ABB=ON  PLU=ON  L24 AND (L31 OR L32)

     FILE 'COMPENDEX' ENTERED AT 12:46:10 ON 20 MAY 2008
L36          297 SEA ABB=ON  PLU=ON  (PORO? OR PORE OR PERVIOUS)(2A)L13
L37           24 SEA ABB=ON  PLU=ON  L36 AND (L8 OR L9 OR L10 OR L11 OR
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L38            7 SEA ABB=ON  PLU=ON  L37 AND L16
L39            1 SEA ABB=ON  PLU=ON  (L37 OR L38) AND L18
L40            0 SEA ABB=ON  PLU=ON  (L37 OR L38 OR L39) AND (L21 OR L22)

L41            2 SEA ABB=ON  PLU=ON  (L37 OR L38 OR L39) AND (L31 OR L32)

L42           10 SEA ABB=ON  PLU=ON  L38 OR L39 OR L41
L43            3 SEA ABB=ON  PLU=ON  L42 AND PY<=2004

     FILE 'JAPIO' ENTERED AT 13:03:15 ON 20 MAY 2008
L44          991 SEA ABB=ON  PLU=ON  (PORO? OR PORE OR PERVIOUS)(2A)L13
L45           33 SEA ABB=ON  PLU=ON  L44 AND (L8 OR L9 OR L10 OR L11 OR
                 L12)
L46            0 SEA ABB=ON  PLU=ON  L45 AND L16
L47            7 SEA ABB=ON  PLU=ON  L45 AND L18
L48            0 SEA ABB=ON  PLU=ON  (L45 OR L47) AND (L21 OR L22)
L49            1 SEA ABB=ON  PLU=ON  (L45 OR L47) AND (L31 OR L32)
L50            8 SEA ABB=ON  PLU=ON  (L47 OR L49) AND PY<=2004

     FILE 'INSPEC' ENTERED AT 13:17:21 ON 20 MAY 2008
L51          263 SEA ABB=ON  PLU=ON  (PORO? OR PORE OR PERVIOUS)(2A)L13
L52           41 SEA ABB=ON  PLU=ON  L51 AND (L8 OR L9 OR L10 OR L11 OR
                 L12)
L53           10 SEA ABB=ON  PLU=ON  L52 AND L16
L54            4 SEA ABB=ON  PLU=ON  (L52 OR L53) AND L18
L55            0 SEA ABB=ON  PLU=ON  (L52 OR L53 OR L54) AND (L21 OR L22)

L56            3 SEA ABB=ON  PLU=ON  (L52 OR L53 OR L54) AND (L31 OR L32)

L57            7 SEA ABB=ON  PLU=ON  L54 OR L56

     FILE 'WPIX' ENTERED AT 13:24:16 ON 20 MAY 2008
                SEL L34 PN,AP

     FILE 'HCAPLUS' ENTERED AT 13:24:31 ON 20 MAY 2008
L58            1 SEA ABB=ON  PLU=ON  (KR2003-26419/AP OR CN1610169/PN OR
                 CN2003-10125472/AP OR JP2003-431458/AP OR JP2004327422/PN
                  OR KR2004092188/PN OR KR496641/PN OR US2003-748363/AP
                 OR US20040214088/PN)
L59            9 SEA ABB=ON  PLU=ON  L24 NOT L58

     FILE 'HCAPLUS, COMPENDEX, JAPIO, INSPEC' ENTERED AT 13:25:02 ON 20
     MAY 2008
L60           23 DUP REM L59 L43 L50 L57 (4 DUPLICATES REMOVED)

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